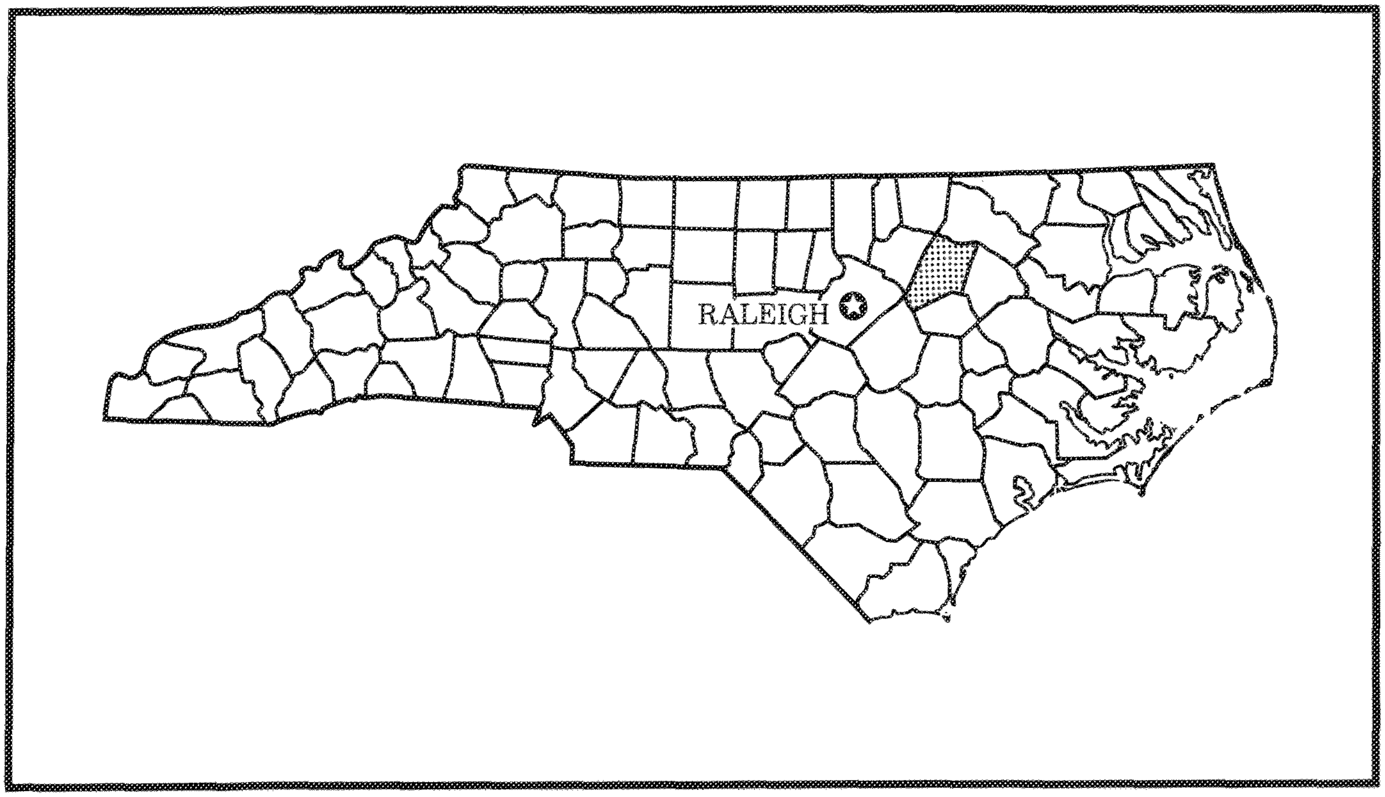
United States
Department of
Agriculture

Soil
Conservation
Service

In cooperation with
North Carolina Department
of Natural Resources and
Community Development,
North Carolina Agricultural
Extension Service,
North Carolina Agricultural
Research Service, and
Nash County
Board of Commissioners

Soil Survey of Nash County, North Carolina



Location of Nash County in North Carolina.

Figure 1.—This cage layer poultry operation is an example of Nash County's diverse agricultural base. A large number of broiler operations as well as farrow-to-finish swine enterprises are also in the county.

Nash County is drained to the east and southeast by many large streams. Fishing and Swift Creeks drain the northern part of the county, and the central part is drained by the Pig Basket, Stony, and Sapony Creeks. The Tar River and the Toisnot, Turkey, and Moccasin Creeks drain the southern part.

Ground water supplies are adequate but can be threatened by prolonged drought. Hundreds of dug ponds supply irrigation water for crops. All rural homes and most towns except Rocky Mount rely on ground water for their needs. Surface water from the Tar River and Sapony Creek Reservoirs supplies Rocky Mount and part of Nashville. Runoff ponds throughout the county supply surface water for fishing and irrigation.

History and Development

T.E. Ricks, president, Nash County Historical Society, prepared this section.

Nash County was established in 1777. It had been a part of Colonial Albemarle, then a part of Chowan County, later a part of Bertie County, and finally a part of Edgecombe County. Assemblymen Boddie and Johnston of Edgecombe County petitioned the North Carolina Assembly for a division of Edgecombe to establish a new county west of the Falls of the Tar. The request was made because "the largest extent of Edgecombe County renders it grievous and troublesome to many of the inhabitants thereof to attend court and general elections and other public meetings" *(10)*. The county was named in honor of General Francis Nash of North Carolina. General Nash had died just months before in the Revolutionary battle of Germantown in Pennsylvania.

The period of 1830 to 1860 was one of prosperity for the county. The area was a panorama of large plantations. A cotton mill established in 1818 at the Falls of the Tar in Rocky Mount and the completion of the Wilmington to Weldon Railroad in 1840 contributed to the prosperity.

The Civil War halted growth in Nash County for some time and resulted in the emergence of a different life style with the family farm pretty much replacing the plantation. Cotton continued to be an important crop, but it was not as lucrative because of the loss of slave labor. By the early 1880's following the introduction of guano into the area, tobacco was grown commercially. By 1887, Rocky Mount had a tobacco sales warehouse, and two years later, a bank was established. Tobacco has

Figure 2.—Peanuts is a major crop on Norfolk loamy sand, 0 to 2 percent slopes, in the Whitakers area.

tile or ditch drainage systems help to overcome this limitation.

The major soils can be used for most urban development and as habitat for wildlife.

3. Rains-Norfolk-Goldsboro

Nearly level to gently sloping, poorly drained, well drained, and moderately well drained soils that have a loamy or clayey subsoil; on uplands

These soils are mainly in the east and southeast section of the county. Typically, the areas are broad, nearly level to gently sloping, and vary in size.

This map unit makes up about 3 percent of the county. About 48 percent is Rains soils, 17 percent is Norfolk soils, 13 percent is Goldsboro soils, and 22 percent is soils of minor extent.

Rains soils are poorly drained. They are in upland depressions that form heads of drainageways. These soils have a fine sandy loam surface layer and a sandy clay loam or sandy clay subsoil.

Norfolk soils are well drained and are on ridges and side slopes. They have a loamy sand surface layer and a sandy clay loam subsoil.

Goldsboro soils are moderately well drained. They are in upland depressions and low, flat areas between the Norfolk and Rains soils. These soils have a surface layer of fine sandy loam and a subsoil of sandy clay loam.

Of minor extent in this map unit are the Bonneau and Bibb soils. The Bonneau soils are in well drained areas, and the Bibb soils are along drainageways.

Rains soils can be used for farming, habitat for woodland and wetland wildlife, urban development, and forestry. They are chiefly used for forestry. The high water table is the main limitation to the use of these soils.

Norfolk soils are used mainly for row crops. In some scattered areas, they are used as pasture or woodland.

Goldsboro soils can be used for farming, habitat for openland or woodland wildlife, urban development, and forestry. They are chiefly used for farming. The seasonal high water table affects most uses of these soils.

4. Bonneau-Norfolk

Nearly level to gently sloping, well drained soils that have a loamy subsoil; on uplands

These soils are mainly in the central section of the county. Typically, the areas are broad, gently sloping, and vary in size.

This map unit makes up about 2 percent of the county. About 25 percent of the map unit is Bonneau soils, 19 percent is Norfolk soils, and 56 percent is soils of minor extent.

Bonneau soils are well drained and are on gently sloping uplands. They have a thick, loamy sand surface layer and a sandy clay loam subsoil.

Norfolk soils are well drained and are on nearly level to gently sloping uplands. They have a loamy sand surface layer and a sandy clay loam subsoil.

Of minor extent in this map unit are the Blanton, Goldsboro, Rains, and Bibb soils. The Blanton soils are on uplands, and the Goldsboro and Rains soils are in upland depressions. The Bibb soils are in drainageways.

The major soils can be used for farming, habitat for openland or woodland wildlife, urban development, and forestry. They are chiefly used as cropland. The sandy surface layer is susceptible to drought and wind erosion if farmed (fig. 3) and to cave-ins and seepage in shallow excavations.

5. Wehadkee-Altavista-Wickham

Nearly level, poorly drained, moderately well drained and well drained soils that have a loamy subsoil; on

Figure 3.—Bonneau loamy sand, 0 to 6 percent slopes, is susceptible to wind erosion if left unprotected.

the clay subsoil slows effluent absorption from septic tanks. Helena and Worsham soils are not commonly used for urban development because of slow permeability, shrinking and swelling, and a seasonal high water table.

8. Dothan-Autryville

Nearly level to gently sloping, well drained soils that have a loamy subsoil; on uplands

These soils are in the south section of the county. Typically, the areas are broad, nearly level to gently sloping, and vary in size.

This map unit makes up about 4 percent of the county. About 37 percent of the map unit is Dothan soils, 13 percent is Autryville soils, and 50 percent is soils of minor extent.

Dothan soils are well drained and are on nearly level uplands. They have a loamy sand surface layer and a sandy clay loam subsoil. A plinthite layer starts between 4 and 6 feet below the surface.

Autryville soils are well drained and are on nearly level to gently sloping uplands. They have a loamy sand surface layer and a sandy loam subsoil. A buried subsurface layer of loamy sand is 4 to 6 feet below the present surface. The subsoil below the buried subsurface layer is sandy clay loam.

Of minor extent in this map unit are the Norfolk, Bonneau, Nankin, Goldsboro, Rains, and Bibb soils. The Norfolk and Bonneau soils are intermingled with the major soils. The Nankin soils are on side slopes, and the Goldsboro and Rains soils are in upland depressions. The Bibb soils are along drainageways.

The Dothan and Autryville soils can be used for farming, urban development, habitat for openland or woodland wildlife, and forestry. They are mainly used as cropland. A perched water table above the plinthite layer affects most uses of Dothan soils. The sandy texture of the Autryville soils causes drought in row crops and permits cave-ins and seepage in shallow excavations.

Figure 4.—Wedowee soils that contain granite bedrock outcrops are used as pasture.

Figure 5.—Altavista sandy loam, 0 to 3 percent slopes, rarely flooded, is prone to flooding after periods of heavy rainfall. This soil should not be used as a site for permanent dwellings or farm buildings.

that have a surface layer less than 20 inches thick. The included soils make up 15 percent of the map unit.

This Autryville soil is used mainly for cultivated crops. In some areas, it is used as pasture or woodland.

The major crops on this soil are tobacco, corn, soybeans, sweet potatoes, and cucumbers. Leaching of [redacted]

The dominant native trees are loblolly pine, longleaf pine, hickory, southern red oak, white oak, and post oak. The understory is mainly dogwood, sassafras, American holly, sourwood, and southern waxmyrtle. Moderate seedling mortality as a result of the low available water capacity is the main concern in woodland use and [redacted]

Figure 6.—Cucumbers grow well on soils that have a thick, sandy surface, such as Blanton loamy sand, 0 to 6 percent slopes.

water table is about 50 inches below the surface during the wet season.

Small areas of Norfolk, Blanton, and Autryville soils are included with this soil in mapping. These soils are on the same landscape as the Bonneau soil. The included soils make up to 20 percent of the map unit.

This Bonneau soil is used mostly for cultivated crops. In some areas, it is used as pasture or woodland.

This soil is used for tobacco, corn, small grains, truck crops, soybeans, pasture, and hay. Droughtiness, soil blowing, and leaching of plant nutrients are the main limitations. Winter cover crops, conservation tillage, and windbreaks help to overcome these limitations.

The dominant trees on Bonneau soil are loblolly pine, longleaf pine, white oak, and hickory. The main understory is dogwood, sassafras, and waxmyrtle.

This soil can be used for urban and recreational development, but the sandy surface can hamper some recreational uses. The corrosivity of this soil affects buried pipes and foundations.

This Bonneau soil is in capability subclass IIs and in woodland group 9S.

Co—Congaree fine sandy loam, frequently flooded. This soil is well drained and nearly level. It is on the highest flood plains along many of the larger streams in the county. The mapped areas are elongated and are 5 to 40 acres.

random on the same landscape in areas where the Coastal Plain and Piedmont regions overlap. Also included are some areas of soils that have a sandy loam surface layer, that have gravel on the surface, or that have a yellow subsoil. Some small areas of eroded soils are included; some have a thin surface layer and the subsoil is exposed in others. In these areas, the surface layer is sandy clay or sandy clay loam. Some areas are also included that have slopes of up to 8 percent and that have less clay in the subsoil than normal for Faceville soil. The included soils make up about 30 percent of the map unit.

This Faceville soil is mostly used as cropland and pasture. In some areas, it is used as woodland.

The major crops on this soil are tobacco, corn, soybeans, and small grains. Crop rotation, contour tillage, crop residue management (fig. 7), and grassed waterways reduce erosion. Pasture forages, such as clover, coastal bermudagrass, and fescue, are also grown on this soil.

This soil is well suited to use as woodland. Loblolly pine and longleaf pine are dominant. The understory is mainly dogwood, sassafras, sourwood, and ironwood.

This soil can be used for most urban and recreational development, but the slope and moderate corrosivity to concrete are limitations.

This Faceville soil is in capability subclass IIe and in woodland group 8A.

GeB—Georgeville loam, 2 to 6 percent slopes. This soil is well drained and gently sloping. It is on convex ridgetops in the western half of the county mainly north of State Road 1401 and west of State Road 1004. The areas are oblong and irregular in width. Finger ridges extend perpendicular to the main ridge. The mapped areas range from 3 to 350 acres.

Typically, the surface layer is red loam 6 inches thick. The subsoil extends to a depth of 62 inches. It is red silty clay loam in the upper part and red silty clay in the middle part. The lower part is red silty clay loam and silt

Figure 7.—Conservation tillage is recommended when Faceville loamy sand, 1 to 6 percent slopes, is used for such row crops as corn.

loam that has reddish yellow and weak red mottles. The underlying material to a depth of 78 inches is red silt loam that has reddish yellow mottles.

Georgeville soil has moderate surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to erosion. It is highly corrosive to steel and concrete.

Included with this soil in mapping are areas of Nason, Norfolk, Faceville, and Nankin soils. Nason soils are in similar positions as those of the Georgeville soil and make up to 15 percent of the map unit. Nankin, Norfolk, and Faceville soils make up to 10 percent of the map unit. Nankin soils are on sharp landscape breaks, and Norfolk and Faceville soils are in similar positions as those of the Georgeville soil. Some areas of the Faceville and Nankin soils are eroded and the surface layer is sandy clay loam or sandy clay. Also included are some eroded areas of soils that have a silty clay loam or silty clay surface layer and areas that have between 5 and 20 percent gravel in the surface layer or have a sandy loam surface because of coastal plain capping.

This Georgeville soil is mainly used as woodland. In some areas, it is used as cropland or pasture.

Corn, soybeans, tobacco, and small grains are grown on this soil. Crop rotation (fig. 8), contour tillage, crop residue management, and grassed waterways can reduce erosion. This soil is also used for hay and pasture forages, such as red clover, white clover, coastal bermudagrass, fescue, and orchardgrass.

The dominant trees on Georgeville soil are loblolly pine, longleaf pine, shortleaf pine, white oak, scarlet oak, and southern red oak. The main understory is dogwood, sourwood, redbud, holly, and black cherry. There are no

Figure 8.—Wheat, followed by soybeans in a double crop system, provides erosion protection throughout the winter and spring on Georgeville loam, 2 to 6 percent slopes.

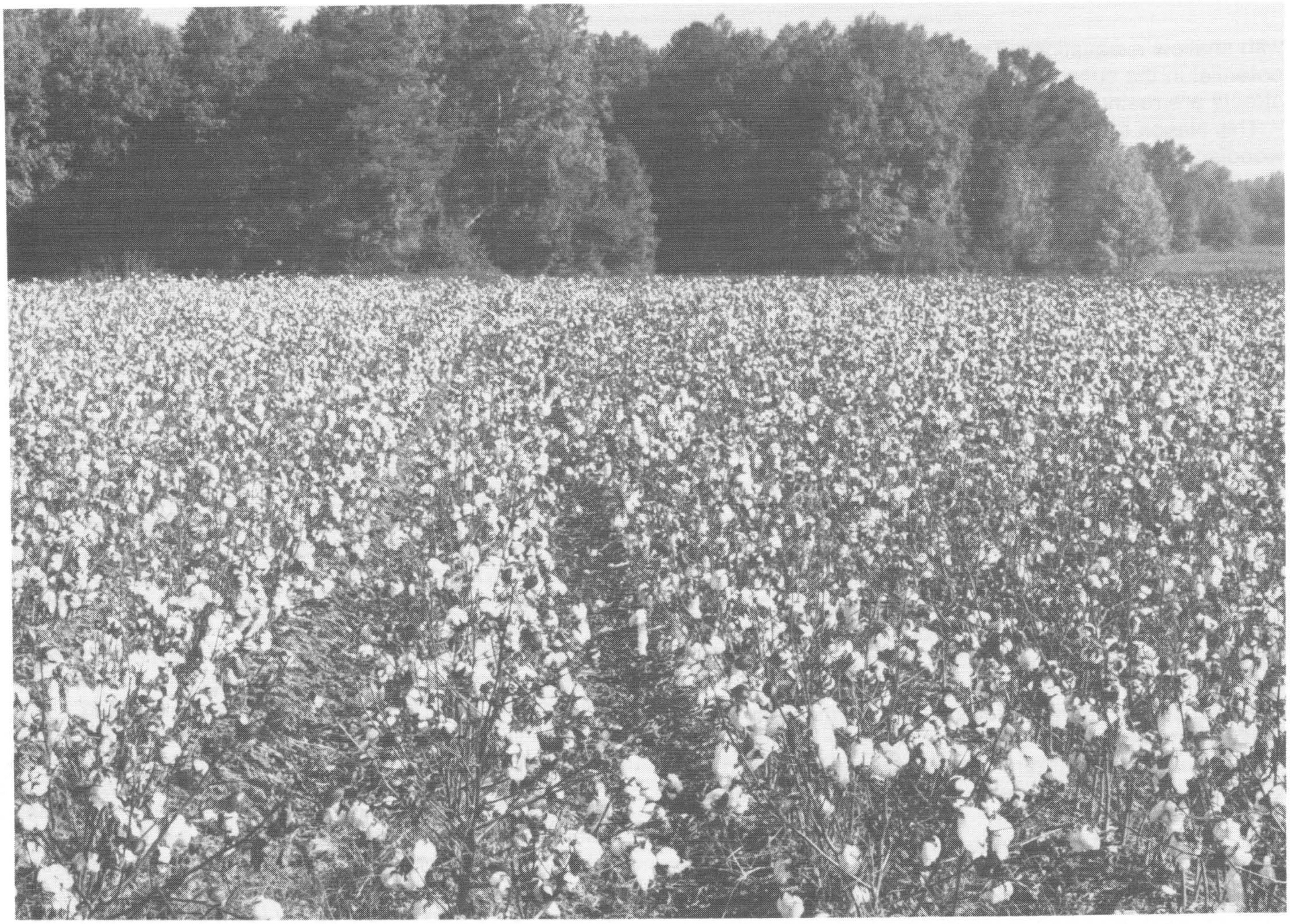


Figure 9.—Norfolk loamy sand, 0 to 2 percent slopes, is well suited to such crops as cotton.

NoB—Norfolk loamy sand, 2 to 6 percent slopes. This soil is well drained and gently sloping. It is on convex ridges and side slopes of the Coastal Plain uplands. Some larger areas of this soil are in the vicinity of Strickland's Crossroads. Some areas in the Piedmont section of the county are 5 to 25 acres.

Typically, the surface layer is grayish brown loamy sand about 10 inches thick. The subsurface layer is very pale brown sandy loam to a depth of about 19 inches. The subsoil extends to a depth of at least 79 inches. It is brownish yellow sandy clay loam in the upper part. The middle part is brownish yellow sandy clay loam that has yellowish red and very pale brown mottles, and the lower part is mottled brownish yellow, yellow, red, and gray sandy loam.

Norfolk soil has moderate surface runoff. Permeability is moderate, and the available water capacity is high. This soil is susceptible to erosion if left unprotected. Plowpans develop where the topsoil thickness is more than the plow depth. This soil is moderately corrosive to steel and highly corrosive to concrete. A seasonal high water table is 48 to 60 inches below the surface in January to March.

Included with this soil in mapping are small areas of Faceville, Gritney, Bonneau, Goldsboro, Rains, and Bibb soils. Faceville soils are near eroded knolls, Gritney soils are on side slopes or sudden twists in the landscape, and Bonneau soils occur side by side with Norfolk soil or they are at the base of slopes in depositional areas. Goldsboro and Rains soils are in depressions marked on the map with a wet spot symbol, and Bibb soils are in the bottoms of upland draws that are too small to show on the map except by a stream symbol. Also included are some areas of soils that have a sandy loam surface layer and some areas of soils that have more clay in the subsoil than is normal for Norfolk soil. Bonneau, Faceville, Goldsboro, and Gritney soils make up to 10 percent of this map unit. Rains, Bibb, and the other included soils make up to 10 percent of the map unit. Georgeville and Appling soils are included with the Norfolk soil in the western half of the county and around Rocky Mount. These included soils are either near eroded knolls, gravelly spots, or are not distinguishable from Norfolk soil. They make up to 10 percent of the map unit in these areas.

Tobacco (fig. 10), corn, soybeans, cotton, small grains, sweet potatoes, and cucumbers are grown on Norfolk soil. Erosion from storm water runoff is the main concern in management. Conservation tillage, crop rotation, contour farming, crop residue management, and grassed waterways help to control erosion and maintain yields. Where Norfolk soil is used as pasture, warm-season grasses are generally grown.

Loblolly pine and longleaf pine are the dominant canopy on this soil. The understory is dogwood, sassafras, black cherry, and American holly.

Where this soil is used for recreational and urban development, corrosivity to pipes and foundations is a limitation. Wetness is a limitation for septic tank absorption fields and dwellings with basements. Slope is a limitation for playgrounds.

This Norfolk soil is in capability subclass IIe and in woodland group 8A.

NpB—Norfolk-Wedowee complex, 2 to 6 percent slopes. This map unit consists of soils that are well drained and gently sloping. The soils are on ridges and side slopes in the vicinity of Matthew's Crossroads and Rocky Mount. They generally have similar textures in the surface layer, but the percent of coarse sand in the surface layer helps to distinguish the soils. Individual areas of these soils are too small or too mixed to map separately at the scale used for the maps in the back of this publication.

Norfolk soil makes up about 40 percent of this map unit. Typically, the surface layer is grayish brown sandy loam 10 inches thick. The subsurface layer is very pale

Figure 10.—Tobacco is one of the main crops on Norfolk loamy sand, 2 to 6 percent slopes.

The soils in this map unit are used mostly for cultivated crops. In some areas, they are used as pasture or woodland.

Corn, soybeans, tobacco, cotton, and small grains are the major crops on these soils. Erosion is a hazard if these soils are cultivated. Conservation tillage, terraces, grassed waterways (fig. 12), and other practices help to control erosion. The vegetative cover provided by pastures conserves soil. Coastal bermudagrass, fescue, and clover are grown on these soils. Because of the range in textures and depths of the surface layer and subsoil of the soils in this map unit, fertilizer and lime requirements and rooting depths vary from area to area within a field.

The dominant trees are loblolly pine, longleaf pine, southern pine, white oak, southern red oak, and scarlet oak. The understory is dogwood, sourwood, holly, cedar, cherry, and sassafras. There are no major limitations to woodland use and management.

These soils can be used for urban and recreational development. Permeability and the corrosive soil conditions are the main limitations. Installation of septic systems requires special planning because tile drain lines can cross several soil conditions.

The Norfolk, Georgeville, and Faceville soils are in capability subclass IIe and in woodland group 8A.

NuB—Norfolk-Urban land complex, 0 to 6 percent slopes. This complex consists of areas of well drained, gently sloping Norfolk soil and Urban land that are too small and too mixed to map separately at the scale used for the maps in the back of this publication. About 50 percent of the map unit is Norfolk soil, and about 30 percent is Urban land. Most areas are large and are in and around Nashville, Rocky Mount, and other towns in the county.

Typically, Norfolk soil has a grayish brown loamy sand surface layer about 10 inches thick. The subsurface layer is very pale brown sandy loam to a depth of 19 inches. The subsoil extends to a depth of at least 79 inches. It is brownish yellow sandy clay loam in the upper part. The middle part is brownish yellow sandy clay loam that has yellowish red and very pale brown mottles, and the lower part is mottled brownish yellow, yellow, red, and gray sandy loam.

Urban land is areas that are covered with streets, buildings, parking lots, railroad yards, and airports. The natural soils were greatly altered by cutting, filling, grading, and shaping during the processes of urbanization. The original landscape, topography, and commonly the drainage pattern have been changed.

Surface runoff is high because buildings and paved areas are impermeable. Runoff is particularly high during intense rainstorms. Because of runoff, erosion is a hazard if the soil is unprotected. The Norfolk soil has

Figure 12.—Grassed waterways on Norfolk, Georgeville, and Faceville soils, 2 to 8 percent slopes, safely carry runoff water. These soils are highly susceptible to erosion if left unprotected.

Sunflowers have their greatest potential, however, as a double crop following the harvest of small grains.

Corn, soybeans, cotton, and small grains (wheat, oats, barley, and rye) are grown throughout the county. Production is good on well-managed soils, but it is reduced on droughty soils or in areas that are severely eroded. In addition to harvested small grains, large acreages are planted for winter cover crops following tobacco, peanuts, sweet potatoes, and cucumbers.

Erosion control. Erosion is the major conservation problem on cropland within the county. Of the 22 soils in Nash County, 14 have slope of more than 2 percent and are subject to erosion.

Crop yields are reduced when the topsoil is lost, and sediment clogs stream channels and reduces water quality. Erosion also carries away costly fertilizers and pesticides applied to the land. Control of erosion improves crop productivity and reduces pollution of streams by sediment. This improves water quality for municipal use, recreation, and for use by fish and wildlife.

Erosion can be controlled by using structural or vegetative conservation measures. Structural measures are terraces, diversions, and contour rows (fig. 13). Vegetative measures include managing crop residue, winter cover crops, grassed waterways, and conservation tillage. The more serious erosion problems generally require structural and vegetative measures to reduce erosion to acceptable levels. More detailed information on conservation practices is available from the local office of the Soil Conservation Service.

The current tendency among land users is to control erosion by vegetative measures. The four-row equipment commonly used does not work well with short rows or sharply curved rows. In almost all instances, cropland that exceeds 6 percent slope (subclass IIIe or IVe) needs terraces or diversions and contour rows to keep soil losses below 5 tons per acre annually. Under these

Figure 13.—Contour stripcropping is sometimes used by Nash County farmers to reduce erosion on gently sloping soils.

Figure 14.—Sudangrass on Georgeville loam, 2 to 6 percent slopes, is part of the large scale forage production required to feed Nash County's beef cattle herds.

Loblolly pine is the most important timber species in the county. It grows fast, is adapted to the soil and climate, brings the highest average sale value per acre, and is easy to establish and manage.

One of the first steps for intensively managing forest land is to determine the productive capacity of the land for several alternative tree species. Comparisons are then made of potential yield and value so that the most productive and valued trees can be selected for each parcel of land. With site and yield information, a forest manager can estimate future wood supplies. These estimates can be used to make realistic decisions about future expenses and profits associated with intensive forest management, land acquisition, or industrial investments.

The productive capacity of forest lands depends on physiography, soil properties, climate, and the effects of past management. Specific soil properties and site characteristics affect forest productivity primarily by influencing available water capacity, aeration, and root development. These properties and characteristics include soil depth, texture, structure, and depth to water table. The net effects of the interaction of these factors determine site productivity. For example, coarse textured soils are generally low in nutrient content and available water capacity. Fine textured soils can be high in nutrient content and have high available water capacity. However, when clays are compacted, aeration is reduced and root growth is inhibited. Species differ in their degree of adaptation to various site conditions. The amount of rainfall and length of growing season also influence site productivity.

Loblolly pine can be planted for timber production on most soils in Nash County, but the Wehadkee, Bibb, and Meggett soils are suited to hardwoods because of the [illegible] eastern half of the county, Rains fine sandy loam produces excellent stands of loblolly pine. In the western half, Georgeville loam (fig. 15). Wedowee coarse sandy loam, and Rains fine sandy loam are primarily used for timber production.

Timber management is advantageous on productive sites for several reasons. Good sites produce a greater quantity and a better quality of yield. Good sites quickly produce large trees, thus rotations are shorter and compound interest on forestry investments is minimized. The productive sites generally are more responsive to intensive silvicultural practices, such as thinning, fertilization, and drainage.

Erosion control is important during and after logging operations. Removing trees is not the main cause of erosion in timber harvesting. Erosion also occurs from access roads, skid trails, and loading areas. Filter strips, or vegetated areas between logging roads and streams, help to prevent sediment from entering streams. Crossing streams with roads or skid paths should be avoided, but where it is necessary, culverts or log bridges should be installed.

Roads and trails need to be on the contour. Water bars, culverts, broad based dips, and out sloping of roads should be used to control erosion. Roads should be built on a grade of less than 10 percent.

Soils vary in their ability to produce trees. Depth, fertility, texture, and the available water capacity influence tree growth. Elevation, aspect, and climate

Figure 15.—A prescribed burn was used on this site to eliminate logging slash and reduce hardwood sprouting. Soil erosion and compaction are reduced by using this technique. Loblolly pine will be planted in this area of Georgeville loam, 2 to 6 percent slopes.

Figure 16.—Sunset Park in Rocky Mount is on Altavista sandy loam, 0 to 3 percent slopes, rarely flooded. Locating a park on this flood-prone soil is a wise land use.

surface. The suitability of the soil for tees or greens is not considered in rating the soils.

Wildlife Habitat

Mike Scruggs, wildlife biologist, and J. Phil Edwards, biologist, Soil Conservation Service, helped prepare this section.

Deer are throughout Nash County, but their greatest concentrations are in the northern part of the county. They live in woodland associated primarily with Georgeville, Rains, Meggett, and Wehadkee soils. The best approach to deer management in Nash County involves proper timber management including thinning and controlled burns (fig. 17).

Nash County also has abundant small game and numerous nongame species that thrive best in transition zones maintained in early successional stages. Transition zones are field borders, woodlot perimeters, roadsides, ditches, power line rights-of-way, and windbreaks. They are on all soils in the county and can be managed with little expenditure of time or money. Nash County, with its numerous small woodlots and moderate sized farms, has thousands of miles of transition zones available for wildlife management. This management can be accomplished by controlled burning, wildlife plantings, disking, mowing, or by leaving unharvested crops along field edges.

Information on small game management, onsite technical guidance, and wildlife planting materials are available from the North Carolina Wildlife Resources Commission and the Soil Conservation Service.

Soils affect the kind and amount of vegetation that is available to wildlife as food and cover. They also affect the construction of water impoundments. The kind and abundance of wildlife depend largely on the amount and distribution of food, cover, and water. Wildlife habitat can be created or improved by planting appropriate vegetation, by maintaining the existing plant cover, or by promoting the natural establishment of desirable plants.

In table 10, the soils in the survey area are rated according to their potential for providing habitat for various kinds of wildlife. This information can be used in planning parks, wildlife refuges, nature study areas, and other developments for wildlife; in selecting soils that are suitable for establishing, improving, or maintaining specific elements of wildlife habitat; and in determining the intensity of management needed for each element of the habitat.

The potential of the soil is rated good, fair, poor, or very poor. A rating of *good* indicates that the element or kind of habitat is easily established, improved, or maintained. Few or no limitations affect management, and satisfactory results can be expected. A rating of *fair* indicates that the element or kind of habitat can be

Figure 17.—This prescribed burn is in a woodlot on Georgeville loam, 2 to 6 percent slopes. This practice is recommended to improve timber production and wildlife habitat.

established, improved, or maintained in most places. Moderately intensive management is required for satisfactory results. A rating of *poor* indicates that limitations are severe for the designated element or kind of habitat. Habitat can be created, improved, or maintained in most places, but management is difficult and must be intensive. A rating of *very poor* indicates that restrictions for the element or kind of habitat are very severe and that unsatisfactory results can be expected. Creating, improving, or maintaining habitat is impractical or impossible.

The elements of wildlife habitat are described in the following paragraphs.

Grain and seed crops are domestic grains and seed-producing herbaceous plants. Soil properties and features that affect the growth of grain and seed crops are depth of the root zone, texture of the surface layer, available water capacity, wetness, slope, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of grain and seed crops are corn, wheat, oats, and barley.

Grasses and legumes are domestic perennial grasses and herbaceous legumes. Soil properties and features that affect the growth of grasses and legumes are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, flood hazard, and slope. Soil temperature and soil moisture are also considerations. Examples of grasses and legumes are fescue, lovegrass, bromegrass, clover, and alfalfa.

Wild herbaceous plants are native or naturally established grasses and forbs, including weeds. Soil properties and features that affect the growth of these plants are depth of the root zone, texture of the surface layer, available water capacity, wetness, surface stoniness, and flood hazard. Soil temperature and soil moisture are also considerations. Examples of wild herbaceous plants are bluestem, goldenrod, and beggarweed.

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material, low shrink-swell potential, few cobbles and stones, and slopes of 15 percent or less. Depth to the water table is more than 3 feet. Soils rated *fair* are more than 35 percent silt- and clay-sized particles and have a plasticity index of less than 10. They have moderate shrink-swell potential, slopes of 15 to 25 percent, or many stones. Depth to the water table is 1 to 3 feet. Soils rated *poor* have a plasticity index of more than 10, a high shrink-swell potential, many stones, or slopes of more than 25 percent. They are wet, and the depth to the water table is less than 1 foot. They may have layers of suitable material, but the material is less than 3 feet thick.

Sand and gravel are natural aggregates suitable for commercial use with a minimum of processing. Sand and gravel are used in many kinds of construction. Specifications for each use vary widely. In table 13, only the probability of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material.

The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the engineering classification of the soil), the thickness of suitable material, and the content of rock fragments. Kinds of rock, acidity, and stratification are given in the soil series descriptions. Gradation of grain sizes is given in the table on engineering index properties.

A soil rated as a probable source has a layer of clean sand or gravel or a layer of sand or gravel that is up to 12 percent silty fines. This material must be at least 3 feet thick and less than 50 percent, by weight, large stones. All other soils are rated as an improbable source. Coarse fragments of soft bedrock, such as shale and siltstone, are not considered to be sand and gravel.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area.

Plant growth is affected by toxic material and by such properties as soil reaction, available water capacity, and fertility. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to water table, rock fragments, bedrock, and toxic material.

Soils rated *good* have friable, loamy material to a depth of at least 40 inches. They are free of stones and cobbles, have little or no gravel, and have slopes of less than 8 percent. They are low in content of soluble salts, are naturally fertile or respond well to fertilizer, and are not so wet that excavation is difficult.

Soils rated *fair* are sandy soils, loamy soils that have a relatively high content of clay, soils that have only 20 to 40 inches of suitable material, soils that have an appreciable amount of gravel, stones, or soluble salts, or soils that have slopes of 8 to 15 percent. The soils are not so wet that excavation is difficult.

Soils rated *poor* are very sandy or clayey, have less than 20 inches of suitable material, have a large amount of gravel, stones, or soluble salts, have slopes of more than 15 percent, or have a seasonal water table at or near the surface.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and releases a variety of plant-available nutrients as it decomposes.

Water Management

Table 14 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed ponds. The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and are easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, significant increase in construction costs, and possibly increased maintenance are required.

This table also gives the restrictive features that affect each soil for drainage, irrigation, terraces and diversions, and grassed waterways.

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Drainage is the removal of excess surface and subsurface water from the soil. How easily and effectively the soil is drained depends on the depth to bedrock, to a cemented pan, or to other layers that affect the rate of water movement; permeability; depth to a high water table or depth of standing water if the soil is subject to ponding; slope; susceptibility to flooding;

are embankments or a
d ridges constructed across
nd conserve moisture by
vetness, large stones, and
mented pan affect the
d diversions. A restricted
ard of wind or water erosion,
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atural or constructed
nd shallow, that conduct
a nonerosive velocity. Large
d depth to bedrock or to a
nstruction of grassed
d erosion, low available water
depth, toxic substances such
tricted permeability adversely
enance of the grass after

Properties

g to soil properties are collected during the soil survey. The data and the estimates of features, listed in tables, are explained on ages.

es are determined by field examination of by laboratory index testing of some ls. Established standard procedures are ng the survey, many shallow borings are mined to identify and classify the soils and em on the soil maps. Samples are taken cal profiles and tested in the laboratory to n-size distribution, plasticity, and aracteristics. These results are reported in

soil properties are based on field on laboratory tests of samples from the nd on laboratory tests of samples of nearby areas. Tests verify field verify properties that cannot be estimated eld observation, and help characterize

es of soil properties shown in the tables ge of grain-size distribution and Atterberg neering classifications, and the physical properties of the major layers of each soil. nd water features also are given.

Index Properties

es estimates of the engineering nd of the range of index properties for the each soil in the survey area. Most soils contrasting properties within the upper 5

upper and lower boundaries of each layer e range in depth and information on other ach layer are given for each soil series ies and Their Morphology."

ven in the standard terms used by the nt of Agriculture. These terms are defined ercentages of sand, silt, and clay in the soil that is less than 2 millimeters in m," for example, is soil that is 7 to 27 8 to 50 percent silt, and less than 52 the content of particles coarser than h as 15 percent, an appropriate modifier ample, "gravelly." Textural terms are Glossary.

Classification of the soils is determined according to the Unified soil classification system *(2)* and the system adopted by the American Association of State Highway and Transportation Officials *(1)*.

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to grain-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, SP-SM.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of grain-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group index number. Group index numbers range from 0 for the best subgrade material to 20, or higher, for the poorest. The AASHTO classification for soils tested, with group index numbers in parentheses, is given in table 18.

Rock fragments larger than 3 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

nd *plasticity index* (Atterberg limits) isticity characteristics of a soil. The based on test data from the survey area, areas, and on field examination.

d Chemical Properties

ws estimates of some characteristics and fect soil behavior. These estimates are ajor layers of each soil in the survey area. are based on field observations and on ese and similar soils.

l separate, or component, consists of ticles that are less than 0.002 millimeter this table, the estimated clay content of layer is given as a percentage, by oil material that is less than 2 millimeters

and kind of clay greatly affect the fertility ndition of the soil. They influence the n of cations, moisture retention, shrink- permeability, plasticity, the ease of soil other soil properties. The amount and soil also affect tillage and earth-moving

nsity is the weight of soil (ovendry) per lume is measured when the soil is at field ty, that is, the moisture content at 1/3 nsion. Weight is determined after drying degrees C. In this table, the estimated ity of each major soil horizon is ams per cubic centimeter of soil material 2 millimeters in diameter. Bulk density compute shrink-swell potential, capacity, total pore space, and other soil moist bulk density of a soil indicates the lable for water and roots. A bulk density 6 can restrict water storage and root ist bulk density is influenced by texture, ntent of organic matter, and soil structure.

efers to the ability of a soil to transmit estimates indicate the rate of ater through the soil when the soil is are based on soil characteristics field, particularly structure, porosity, and bility is considered in the design of soil s, septic tank absorption fields, and ere the rate of water movement under ions affects behavior.

er capacity refers to the quantity of water apable of storing for use by plants. The er storage in each major soil layer is of water per inch of soil. The capacity g on soil properties that affect the er and the depth of the root zone. The properties are the content of organic re, bulk density, and soil structure.

Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Soil reaction is a measure of acidity or alkalinity and is expressed as a range in pH values. The range in pH of each major horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Shrink-swell potential is the potential for volume change in a soil with a loss or gain in moisture. Volume change occurs mainly because of the interaction of clay minerals with water and varies with the amount and type of clay minerals in the soil. The size of the load on the soil and the magnitude of the change in soil moisture content influence the amount of swelling of soils in place. Laboratory measurements of swelling of undisturbed clods were made for many soils. For others, swelling was estimated on the basis of the kind and amount of clay minerals in the soil and on measurements of similar soils.

If the shrink-swell potential is rated moderate to very high, shrinking and swelling can cause damage to buildings, roads, and other structures. Special design is often needed.

Shrink-swell potential classes are based on the change in length of an unconfined clod as moisture content is increased from air-dry to field capacity. The change is based on the soil fraction less than 2 millimeters in diameter. The classes are *low*, a change of less than 3 percent; *moderate*, 3 to 6 percent; and *high*, more than 6 percent. *Very high*, greater than 9 percent, is sometimes used.

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) to predict the average annual rate of soil loss by sheet and rill erosion. Losses are expressed in tons per acre per year. These estimates are based primarily on percentage of silt, sand, and organic matter (up to 4 percent) and on soil structure and permeability. Values of K range from 0.02 to 0.69. The higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur over a sustained period without affecting crop productivity. The rate is expressed in tons per acre per year.

Organic matter is the plant and animal residue in the soil at various stages of decomposition.

6.0" indicates that the water table is below a depth of 6 feet or that the water table exists for less than a month.

Depth to bedrock is given if bedrock is within a depth of 5 feet. The depth is based on many soil borings and on observations during soil mapping. The rock is specified as either soft or hard. If the rock is soft or fractured, excavations can be made with trenching machines, backhoes, or small rippers. If the rock is hard or massive, blasting or special equipment generally is needed for excavation.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that dissolves or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors creates a severely corrosive environment. The steel in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than steel in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion is also expressed as *low*, *moderate*, or *high*. It is based on soil texture, acidity, and the amount of sulfates in the saturation extract.

Engineering Index Test Data

Table 18 shows laboratory test data for several pedons sampled at carefully selected sites in the survey area. The pedons are typical of the series and are described in the section "Soil Series and Their Morphology." The soil samples were tested by North Carolina Department of Transportation, Division of Highways, Materials and Tests Unit.

The testing methods generally are those of the American Association of State Highway and Transportation Officials (AASHTO) or the American Society for Testing and Materials (ASTM).

The tests and methods are: AASHTO classification—M 145 (AASHTO), D 3282 (ASTM); Unified classification—D 2487 (ASTM); Mechanical analysis—T 88 (AASHTO), D 2217 (ASTM); Liquid limit—T 89 (AASHTO), D 423 (ASTM); Plasticity index—T 90 (AASHTO), D 424 (ASTM); and Moisture density, Method A—T 99 (AASHTO), D 698 (ASTM).

Formation of the Soils

Factors of Soil Formation

Soils are the product of the combined effects of parent material, climate, plant and animal life, relief, and time. The characteristics of a soil at any specific place is dependent upon a combination of these five environmental factors at that place. All of these factors affect the formation of every soil, but in many places one or two of the factors dominate and fix most of the properties of a particular soil.

Parent Material

The soils of Nash County are formed from soft, loose mineral matter called parent material. Parent material is produced from the physical and chemical breakdown of rocks. It either accumulates in place or is washed into an area by streams or the ocean.

Many of the characteristics of the parent material are imparted to the soil. For example, the kind and amount of clay in a soil is a direct result of the minerals that occur in the parent material. The kind of clay influences how well a soil reacts to fertilizer or how stable the soil is for building upon. The amount of clay affects such things as workability, fertilizer and water retention, and septic tank performance. Parent material is a factor in how much silt and sand is in a soil, the degree of acidity, color, erodibility, topography, the kind of surface the soil develops, and other things that affect the use and management of the soil.

Marine sediment is distributed throughout Nash County either as surficial deposits over residuum or as deep Coastal Plain deposits. Norfolk, Faceville, Nankin, Dothan, Bonneau, Gritney, Goldsboro, and Rains soils formed in this sediment.

Alluvium is distributed throughout the county along narrow drainageways and major streams. Alluvial deposits are underlain either by residuum or marine sediment. The Bibb, Wehadkee, Altavista, Wickham, and Tomotley soils formed from alluvium.

Residuum is in the west and central parts of the county. Widely scattered areas of residuum are also in the eastern half of the county. Part of the residuum in Nash County is derived from the Carolina slates. The Georgeville, Nason, and Worsham soils formed from this residuum. Other residuum is derived from acid-crystalline rocks. The Wedowee and Helena soils are associated with this residuum.

Climate

Climate affects the physical, chemical, and biological relationship in the soil primarily through the influences of precipitation and temperature. Water chemically dissolves rocks, minerals, and organic matter releasing the nutrients needed for life in the soil. The physical transport of organic matter, soil particles, and nutrients through the soil is accomplished by water. Biological relationships among plants and other soil life are totally dependent upon the presence of water. The amount of water that actually moves through the soil to perform these functions is dependent upon the amount and duration of rainfall, relative humidity, evapotranspiration, and the length of the frost-free period. Temperature influences the kind and growth of organisms and the speed of physical and chemical reactions in the soil.

Nash County is warm and humid. Average monthly precipitation is well distributed throughout the year. The relatively mild temperatures and abundant moisture encourage vegetative growth, induce worms and other soil life, cause rapid decomposition of organic matter, and enhance soil chemical and physical reactions.

Climate affects three features of Nash County soils. The loamy surface of most soils in the county is a result of percolating water relocating the clay from the upper horizons to deeper parts of the profile. The low organic matter content is a direct result of extreme summer temperatures, which cause rapid disintegration of organic residue. The organic matter that does remain is what is left of the large quantities of organic litter produced by plants, soil animals, and insects that proliferate in the favorable climate. The climate and the parent material are responsible for the acid conditions within the soil. The low natural fertility, although inherited from the parent material, is further intensified by rainfall. Only through the biocycling action of deep-rooted plants, such as trees, are soluble bases concentrated in the upper part of the soil profile.

Plant and Animal Life

Plant and animal life, in or on the soil, modify to some extent the formation of soil. The kinds and number of organisms that exist are determined to a large extent by the climate and to a varying degree by parent material, relief, and age of the soil. Bacteria, fungi, and other microscopic organisms aid in weathering rock and

ge of the soil is affected by its position
e. In sloping areas, soils on hilltops and
well drained, and soils at the base of
e flat areas between toe slopes have
problems. On flat divides, soils next to
well drained and soils farther back from
e internal drainage problems.
increases as slope increases. Soils that
opes are thin because even under
ral vegetation, the soil erodes away
as it forms. Surface runoff also reduces
loping land, increasing susceptibility to
the base of slopes are thicker because
osits soil material eroded from the slope.
er ridgetops are thick because water
across the ridgetops with great speed;
percolates, and natural erosion is less.
fluences soil temperature through
nd west-facing slopes, for example,
n the spring than north- and east-facing
ture, in turn, affects soil formation by
and animal activity. Plant species differ
emperature differences on the
bial and insect populations are
mperature.

eologist, North Carolina Department of Natural
munity Development, helped prepare this section.

is located along the fall line that marks
tween the Piedmont Province to the
astal Plain Province to the east. The fall
ary line or zone extending through
, and Bailey. The rocks of the Piedmont
(about 350 million years old), are hard,
t to decomposition by the action of
ts. In contrast, the rocks of the Coastal
I hundred million years younger, are
nd are less resistant to decomposition
e Piedmont. Alluvium, the youngest
l in the county, is along all streams and
e areas were built by floodwaters that
silt, clay, and gravel along the stream

is underlain chiefly by various rocks of
amely ash and lava flows. This volcanic
osited in water and on dry land. It was
went physical and chemical changes
ks. When these rocks were exposed to
the surface was softened by wind,
forces to a depth of several feet. This
d saprolite. The soils in the Piedmont
saprolite. Some examples are
, which have a red silty clay subsoil, and
ch have a yellow silty clay subsoil.
the past, the volcanic rocks were

feet during soil formation
ain a reddish, iron-rich
rm. Dothan soils, which have
bsoil, contain plinthite.
e Coastal Plain Province
oils, which have a clay
to yellow, are associated

d the time required to
Each time high water occurs,
hibiting soil development.
ediment generally contain
ndy material and gravel that
Examples of these soils are
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The Bt horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8. The texture is sandy loam.

The E' horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8. The texture is loamy sand.

The B't horizon has hue of 10YR, value of 5 or 6, and chroma of 6 to 8; or it is mottled in hue of 10YR to 5YR, value of 5 to 7, and chroma of 1 to 8. The texture is sandy clay loam.

Bibb Series

The Bibb series consists of poorly drained, moderately permeable soils on flood plains. These soils formed in recent alluvium. Slopes range from 0 to 2 percent.

Typical pedon of Bibb loam, frequently flooded; 1 mile south of Sandy Cross on North Carolina Highway 58, 1.7 miles southwest on State Road 1815, 100 feet in woods south of road (2,305,000X; 772,000Y):

O—1/2 to 0 inch; thin layer of fresh leaves, twigs, partly decomposed leaves and twigs.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) loam; weak medium granular structure; friable; many fine and medium roots; many small and medium pores; very strongly acid; abrupt smooth boundary.

A2—7 to 11 inches; dark grayish brown (10YR 4/2) sandy loam; common medium distinct light gray (10YR 6/1) mottles; weak medium granular structure; friable; common fine roots; many small and medium pores; very strongly acid; abrupt smooth boundary.

Cg1—11 to 22 inches; dark gray (10YR 4/1) sandy loam; common medium distinct light gray (10YR 6/1) mottles and common fine prominent reddish brown (5YR 4/4) mottles; massive; very friable; few fine roots; strongly acid; abrupt smooth boundary.

Cg2—22 to 28 inches; light gray (10YR 6/1) sandy loam; massive; common medium distinct reddish brown (5YR 4/4) mottles and few medium faint gray (10YR 5/1) mottles; massive; very friable; few fine roots; strongly acid; clear smooth boundary.

Cg3—28 to 42 inches; light gray (10YR 6/1) sandy loam; massive; common medium prominent strong brown (7.5YR 5/6) mottles; very friable; few fine roots; many medium pores; few small rounded gravel; very strongly acid; gradual smooth boundary.

Cg4—42 to 60 inches; mottled light gray (10YR 6/1), greenish gray (5BG 5/1), white (N 8/0), and yellowish brown (10YR 5/6) silt loam; massive; few fine roots; common small and medium pores; few small rounded quartz gravel; very strongly acid.

The Bibb soils are very strongly acid or strongly acid throughout.

The A horizon has hue of 10YR, value of 2 to 5, and chroma of 1 or 2. Mottles have hue of 10YR, value of 5 or 6, and chroma of 1 to 6. Where the value is less than 4, the A horizon is less than 6 inches thick. The texture is loam or sandy loam.

The Cg horizon has hue of 5Y to 10YR, value of 3 to 6, and chroma of 1 or 2; it is neutral and has value of 3 to 6; or it is mottled in hue of 5YR to 5BG, value of 4 to 7, and chroma of 1 to 8. When mottled, it can also have neutral colors that have value of 3 to 6. The texture is sandy loam, silt loam, loamy sand, or sand.

Blanton Series

The Blanton series consists of moderately well drained, moderately permeable soils on Coastal Plain uplands. These soils formed in Coastal Plain sediment. Slopes are 0 to 6 percent.

Typical pedon of Blanton loamy sand, 0 to 6 percent slopes; 2 miles south of Sandy Cross, 0.3 mile west of the intersection of North Carolina Highway 58 and State Road 1934, in woods 500 feet north of State Road 1934 (2,311,000X; 774,000Y):

O1—5 to 3 inches; undecomposed forest litter.

O2—3 to 0 inches; decomposed forest litter and root mat.

A—0 to 9 inches; brown (10YR 4/3) loamy sand; weak medium granular structure; very friable; many fine and medium roots; many small pores; extremely acid; clear smooth boundary.

E1—9 to 39 inches; yellow (10YR 7/6) loamy sand; common coarse faint brown (10YR 5/3) mottles and few fine distinct reddish yellow (7.5YR 6/8) mottles; weak medium granular structure; very friable; many fine and medium roots; many small and medium pores; strongly acid; clear smooth boundary.

E2—39 to 49 inches; pale yellow (2.5Y 7/4) loamy sand; weak medium granular structure; very friable, slightly brittle in places; few fine roots; few small pores; strongly acid; clear smooth boundary.

Bt1—49 to 78 inches; strong brown (7.5YR 5/8) sandy clay loam; few fine distinct yellowish red (5YR 5/8) mottles and common fine distinct yellow (10YR 7/8) mottles; weak medium subangular blocky structure; friable; few fine roots; few small pores; common distinct clay skins on surface of sand grains; few distinct clay bridges between sand grains; very strongly acid; clear smooth boundary.

Bt2—78 to 85 inches; mottled reddish yellow (7.5YR 6/8), dark brown (7.5YR 4/2), light gray (10YR 7/2), yellow (10YR 7/8), and yellowish red (5YR 5/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine roots; few small pores; common distinct clay skins on surface of sand grains; few distinct clay bridges between sand grains; very strongly acid.

The Bt horizon ranges in thickness from 17 to 25 inches and begins at a depth of 44 to 60 inches. The ery strongly acid or

)YR, value of 4 to 6, and
is loamy sand or sand.
)YR to 2.5Y, value of 6 or
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0YR or 7.5YR, value of 5
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Plain sediment. Slopes

amy sand, 0 to 4 percent
Cross on State Road
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YR 5/3) loamy sand;
ucture; very friable; many
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brown (10YR 7/3) loamy
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7.5YR 5/8), and very
dy clay loam; pockets of
lium angular blocky

structure; friable; many small pores; common distinct clay skins on surface of sand grains; very strongly acid; clear smooth boundary.

BCg—78 to 93 inches; light gray (10YR 7/2) sandy clay loam; common coarse faint brownish yellow (10YR 6/6) mottles and common coarse prominent red (2.5YR 5/8) mottles; massive; friable; many small pores; very strongly acid.

The Bt horizon begins between 20 and 40 inches below the surface and ranges in thickness from 20 to 45 inches. Reaction is mildly alkaline to very strongly acid in the A and E horizons and strongly acid or very strongly acid in the Bt and BCg horizons.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 2 or 3. The texture is loamy sand.

The E horizon has hue of 10YR, value of 5 to 7, and chroma of 3 or 4. The texture is loamy sand.

The Bt horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 to 8; or it is mottled in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 2 to 8. The texture is generally sandy clay loam, but in some pedons the Bt1 horizon is sandy loam.

The BCg horizon has hue of 10YR, value of 5 to 7, and chroma of 2. It has mottles in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 4 to 8. The texture is sandy loam or sandy clay loam.

Congaree Series

The Congaree series consists of well drained, moderately permeable soils on flood plains. These soils formed in recent alluvium. Slopes are less than 2 percent.

Typical pedon of Congaree fine sandy loam, frequently flooded; 3 miles north of Aventon from the intersection of State Road 1506 and 1505, 0.8 mile northwest on State Road 1505, 1 mile north on a farm road, in woods 150 yards north of end of farm road and 100 feet south of Fishing Creek (2,312,000X; 889,000Y):

O—1 to 0 inch; decomposed and undecomposed forest litter.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) fine sandy loam; moderate medium granular structure; very friable; many fine, medium, and coarse roots; common fine flakes of mica; medium acid; abrupt smooth boundary.

C1—5 to 8 inches; brown (10YR 4/3) fine sandy loam; massive; very friable; many fine and medium roots; many small pores; common fine flakes of mica; medium acid; clear smooth boundary.

C2—8 to 17 inches; brown (10YR 4/3) fine sandy loam; common fine distinct very pale brown (10YR 7/4) mottles; massive; friable; slightly brittle in places; many fine and medium roots; common small pores;

ts of well drained,
ıpland ridges and side
These soils formed in
rained rocks, such as
crystalline tuffs. Slopes

oam, 2 to 6 percent
ille, 1.1 miles east of
oad 1401, 20 feet into
1 (2,290,000X;

ed and partly

/6) loam; weak coarse
ommon fine and medium
; few quartz gravel up to
ly acid; abrupt smooth

/6) silty clay loam;
ar blocky structure;
edium roots; many small
continuous clay skins on
gly acid; clear wavy

4/6) silty clay; strong
structure; firm; common
in number with depth;
distinct clay skins on
; clear wavy boundary.
4/6) silty clay loam; few
w (7.5YR 6/6) mottles;
ar blocky structure;
mall pores; common
of peds; strongly acid;

4/6) silt loam; common
yellow (7.5YR 6/6)
int weak red mottles;
ocky structure; friable;
ous clay skins in root
; clear wavy boundary.
0R 5/3) silt loam;
reddish yellow (7.5YR
friable; very strongly

zon ranges in thickness
s strongly acid or
rongly acid or very
nd very strongly acid in

R to 2.5YR, value of 4
texture is loam or

inches; yellowish brown (10YR 5/8) clay
erate medium subangular blocky
friable; few fine and medium roots;
mall pores; common distinct
ous clay films on faces of peds; very
cid; clear wavy boundary.
inches; yellowish brown (10YR 5/6) clay;
stinct strong brown (7.5YR 5/6) mottles,
nedium prominent red (2.5YR 4/8)
nd few medium prominent light brownish
R 6/2) mottles; moderate medium
r blocky structure; firm; few fine and
ots; common distinct clay skins on the
eds; few fine flakes of mica; very strongly
wavy boundary.
inches; light gray (10YR 7/2) clay;
oarse prominent yellow (10YR 7/8) and
/8) mottles; strong medium subangular
icture; very firm; few fine and medium
mon prominent yellowish brown (10YR
skins on faces of peds; few fine flakes of
strongly acid; abrupt wavy boundary.
ches; coarsely mottled light gray (10YR
nish yellow (10YR 6/6), dark bluish gray
and red (10R 4/8) sandy loam saprolite;
rm in places, friable when broken; few
y skins in vertical cracks; common flakes
ery strongly acid.

on ranges in thickness from 17 to 36
te begins 30 to 48 inches below the
lakes are common below the A horizon.
utral to very strongly acid in the A horizon,
r very strongly acid in the Bt horizon, and
cid in the C horizon.
n has hue of 10YR, value of 5 or 6, and
3. The texture is coarse sandy loam.
n has hue of 10YR or 2.5Y, value of 6 or
of 2 to 4. The texture is coarse sandy

art of the Bt horizon has hue of 10YR,
and chroma of 3 to 8. The lower part has
ilar to the upper part and chroma of 2 to
on has mottles in hue of 2.5Y to 2.5YR,
and chroma of 1 to 8. The texture is
n, clay loam, sandy loam, sandy clay, or

n is mottled in hue of 2.5Y to 10R and
to 7, and chroma of 1 to 8. The texture is
coarse sandy loam.

ries

series consists of poorly drained, slowly
s on flood plains. These soils formed in
ediment. Slopes range from 0 to 2

Typical pedon of Meggett loam, frequently flooded; 1.5 miles north of Battleboro on U.S. Highway 301, 100 feet in woods west of highway (2,370,000X; 848,000Y):

O—2 to 0 inches; undecomposed and partly decomposed forest litter.

A—0 to 6 inches; dark gray (10YR 4/1) loam; weak medium granular structure; very friable; many medium roots; very strongly acid; abrupt smooth boundary.

Btg1—6 to 12 inches; light brownish gray (10YR 6/2) clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; strong medium angular blocky structure; friable; few fine roots; common small pores; many prominent clay skins on faces of peds; very strongly acid; clear smooth boundary.

Btg2—12 to 27 inches; light brownish gray (10YR 6/2) clay loam; common medium prominent yellowish brown (10YR 5/6) mottles and few fine prominent red (2.5YR 4/8) mottles; strong medium angular blocky structure; firm; few fine roots; few small pores; many distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Btg3—27 to 44 inches; grayish brown (10YR 5/2) clay; common medium distinct yellowish brown (10YR 5/6) mottles and common medium prominent red (2.5YR 5/8) mottles; strong medium angular blocky structure; very firm; few fine roots; few small pores; many distinct clay skins on faces of peds; few small calcium carbonate concretions; moderately alkaline; clear wavy boundary.

Btg4—44 to 65 inches; light brownish gray (10YR 6/2) clay loam; common medium prominent yellowish red (5YR 5/6) mottles and few fine prominent dark reddish brown (5YR 3/2) mottles; moderate medium subangular blocky structure; firm; few fine roots; few small pores; common distinct discontinuous clay skins on vertical faces of peds; few fine flakes of mica; moderately alkaline.

The Btg horizon ranges in thickness from 35 to 59 inches. Reaction is very strongly acid to slightly acid in the A horizon and upper part of the Btg horizon and moderately alkaline in the lower part of the Btg horizon. Calcium concretions are in the lower part of the Btg horizon.

The A horizon has hue of 10YR, value of 3 to 5, and chroma of 1 or 2. In some pedons, it has mottles in hue of 10YR or 7.5YR, value of 4 to 7, and chroma of 2 to 8. The texture is loam.

The Btg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has mottles in hue of 10YR to 2.5YR and 5BG, value of 4 to 7, and chroma of 1 to 8. The texture is clay loam or clay.

Nankin Series

The Nankin series consists of well drained, moderately slowly permeable soils on Coastal Plain ridges and side slopes. These soils formed in marine sediment. Slopes range from 2 to 10 percent.

Typical pedon of Nankin sandy loam, 2 to 10 percent slopes; 8 miles north of Nashville, 0.6 mile east of Taylor's Store on State Road 1418, 0.3 mile north of State Road 1418 on a farm road, in a field 25 feet west of the farm road (2,303,000X; 856,000Y):

Ap—0 to 4 inches; dark brown (7.5YR 4/4) sandy loam; weak medium granular structure; very friable; many fine roots; common gravel-size ironstone fragments; medium acid; abrupt smooth boundary.

Bt1—4 to 12 inches; yellowish red (5YR 5/8) clay loam; moderate medium subangular blocky structure; firm; few fine roots; many small pores; common distinct clay skins in vertical cracks; few ironstone fragments; very strongly acid; clear wavy boundary.

Bt2—12 to 27 inches; yellowish red (5YR 4/8) clay loam; few fine prominent yellow (10YR 7/8) mottles; weak medium subangular blocky structure; firm; few fine roots; common small and medium pores; common distinct skins on faces of peds; few faint clay skins on surface of sand grains; common ironstone fragments; very strongly acid; clear wavy boundary.

BC—27 to 45 inches; yellowish red (5YR 4/8) sandy clay loam; common medium distinct brownish yellow (10YR 6/8) mottles and common coarse distinct red (2.5YR 4/8) mottles; weak fine subangular blocky structure; firm and slightly brittle; few pores; very strongly acid; clear wavy boundary.

C—45 to 60 inches; mottled yellowish red (5YR 4/8), brownish yellow (10YR 6/8), red (2.5YR 4/8), and very pale brown (10YR 7/4) sandy loam; massive; firm and brittle in place, friable when broken; few pores; very strongly acid.

The Bt horizon ranges in thickness from 20 to 34 inches. The A and B horizons contain few to many ironstone concretions. Reaction is medium acid or strongly acid in the A horizon and strongly acid or very strongly acid in the B and C horizons.

The A horizon has hue of 10YR or 7.5YR, value of 4 or 5, and chroma of 2 to 4. The texture is sandy loam.

The Bt horizon has hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 6 to 8. It has mottles in hue of 10YR to 5YR, value of 4 to 7, and chroma of 4 to 8. The texture is clay loam or sandy clay.

The C horizon is mottled in hue of 10YR to 2.5YR, value of 4 to 7, and chroma of 1 to 8. The texture is sandy loam and sandy clay loam.

extremely acid

of 4 or 5, and
sandy loam.
YR, value of 5 or
hue of 10YR to
to 8. The texture

to silt loam. It
8, and chroma

ined, moderately
tal Plain. These
Slopes range

0 to 2 percent
the intersection
t west on State
State Road 1923

R 5/2) loamy
ire; very friable;
; moderately

YR 7/3) sandy
tles; weak
ole; few small
line; clear wavy

10YR 6/6) sandy
blocky
any small pores;
on faces of
oundary.
10YR 6/6) sandy
yellowish red
ubangular blocky
few distinct
peds; few faint
s; very strongly

10YR 6/6) sandy
brown (10YR
ular blocky
few distinct
peds; few faint
s; very strongly

yellow (10YR
5/8), and gray
um subangular
very strongly

ɔical pedon of Wedowee coarse sandy loam, 2 to 6
ənt slope; 0.2 mile southeast of Lancaster's
sroad on State Road 1321, 0.4 mile south on a farm
to tobacco barn, in a field 100 feet southeast of the
(2,270,000X; 840,000Y):

-0 to 10 inches; brown (10YR 4/3) coarse sandy
oam; weak medium granular structure; very friable;
many fine roots; many small pores; medium acid;
abrupt wavy boundary.

-0 to 13 inches; brownish yellow (10YR 6/6) coarse
sandy loam; moderate medium granular structure;
riable; few fine roots; many small pores; strongly
acid; abrupt smooth boundary.

-13 to 25 inches; reddish yellow (7.5YR 6/8) clay;
ew fine prominent red (2.5YR 4/8) mottles and
common coarse distinct yellowish brown (10YR 5/4)
nottles; moderate medium subangular blocky
structure; firm; few fine roots; common small pores;
common distinct clay skins on faces of peds;
common fine flakes of mica; very strongly acid; clear
wavy boundary.

-25 to 34 inches; yellowish red (7.5YR 6/8) clay;
common fine prominent red (2.5YR 4/8) mottles and
ew fine distinct yellowish brown (10YR 5/4) mottles;
noderate medium subangular blocky structure; firm;
ew small roots; common small pores; many
prominent clay skins on faces of peds; common fine
lakes of mica; very strongly acid; clear smooth
boundary.

-34 to 39 inches; mottled red (2.5YR 4/6), strong
brown (7.5YR 5/6), yellow (10YR 7/8), and white
(10YR 8/2) clay loam; weak medium subangular
blocky structure; friable; few distinct discontinuous
clay skins on vertical cracks; common fine flakes of
nica; very strongly acid; clear smooth boundary.

9 to 63 inches; mottled red (2.5YR 4/8), white
(10YR 8/2), yellow (10YR 7/8), and brownish yellow
(10YR 6/8) sandy clay loam; massive; friable; many
ine flakes of mica; very strongly acid.

e Bt horizon ranges in thickness from 11 to 24
es. Reaction is very strongly acid or strongly acid
ghout except where lime has been added. Common
s of mica are throughout the Bt, BC, and C
ons.

e A horizon has hue of 10YR, value of 4 or 5, and
na of 3 or 4. The texture is coarse sandy loam.

e E horizon has hue of 10YR, value of 6 or 7, and
na of 4 to 8. The texture is coarse sandy loam or
y loam.

e Bt horizon has hue of 10YR to 5YR, value of 5 or
d chroma of 6 to 8. It has mottles in hue of 10YR to
R, value of 4 to 7, and chroma of 3 to 8. The texture
y, sandy clay, or clay loam.

The Bt horizon has hue of 5YR or 2.5YR, value of 4 or 5, and chroma of 4 to 8. The texture is sandy clay loam.

The C horizon has hue of 10YR or 7.5YR, value of 5 or 6, and chroma of 3 to 6. The texture is sandy loam, loamy sand, or sand.

Worsham Series

The Worsham series consists of poorly drained, very slowly permeable soils on uplands. These soils are in depressions at the base of slopes and at the head of drainageways that receive seepage water from higher-lying uplands. They formed in local alluvium or in residuum from weathered felsic rocks. Slopes range from 0 to 2 percent.

Typical pedon of Worsham loam, 0 to 2 percent slopes; 4 miles west of Spring Hope, 0.2 mile south of the intersection of Alternate U.S. Highway 64 and State Road 1149, in woods 125 feet west of State Road 1149 (2,238,000X; 788,000Y):

O1—4 to 3 inches; undecomposed forest litter.

O2—3 to 0 inches; decomposed organic matter and root mat.

A1—0 to 5 inches; dark grayish brown (10YR 4/2) loam; many medium distinct gray (10YR 6/1) mottles and many fine distinct yellowish brown (10YR 5/8) mottles; strong medium granular structure; very friable; many fine and medium roots; many small and medium pores; medium acid; abrupt smooth boundary.

A2—5 to 7 inches; gray (10YR 6/1) loam; few fine distinct yellowish brown (10YR 5/8) mottles; strong medium granular structure; very friable; many fine roots; many small pores; medium acid; abrupt smooth boundary.

Btg1—7 to 15 inches; gray (10YR 6/1) clay loam; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; many fine and medium roots; many small and medium pores; few distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Btg2—15 to 38 inches; gray (10YR 6/1) clay; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; many small, medium, and large pores; common distinct clay skins on faces of peds; very strongly acid; clear wavy boundary.

Btg3—38 to 50 inches; gray (10YR 6/1) clay; few fine distinct yellowish brown (10YR 5/8) mottles; moderate medium subangular blocky structure; firm; common fine roots; many small, medium, and large pores; common distinct clay skins on faces of peds; few small flakes of mica; many large sand grains; few small quartz gravel; very strongly acid; clear wavy boundary.

Btg4—50 to 67 inches; gray (10YR 6/1) clay loam; common fine distinct yellowish brown (10YR 5/8) mottles and common medium distinct white (5Y 8/2) mottles; moderate medium subangular blocky structure; friable; few small, medium, and large pores; common distinct discontinuous clay skins on faces of peds; few small flakes of mica; few to common gravel that commonly increase in amount with depth; very strongly acid.

The Btg horizon ranges in thickness from 29 to more than 60 inches. Reaction is very strongly acid to slightly acid in the A horizon and strongly acid or very strongly acid in the Btg horizon. Few flakes of mica are in the lower part of the Btg horizon and in the BCg horizon.

The A horizon has hue of 2.5Y to 10YR, value of 4 to 6, and chroma of 1 or 2. It has mottles in hue of 10YR and 7.5YR, value of 5 or 6, and chroma of 1 to 8. The texture is loam.

The Btg horizon has hue of 10YR, value of 5 or 6, and chroma of 1 or 2. It has mottles in hue of 10YR to 2.5YR, value of 4 to 6, and chroma of 1 to 8. The texture is dominantly clay or clay loam but includes sandy clay loam or sandy clay. In a few pedons, the lower part of the Btg horizon is sandy loam.

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g the contour at a
ce is 10 to 20 inches
d has gently sloping
dish-shaped channel
nearly level or have
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force that holds

soils on a landscape
parent material but
cs as a result of
ge.
harge of electricity.
alcium, potassium,
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be held by the soil,
alents per 100 grams
at some other stated
to soils, is
ge capacity, but is

l soil particles less
er. As a soil textural
rcent or more clay,
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d clay on the surface
es or root channels.
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A general textural
silty clay, and clay

eria). A specific
earth (particles less
ntrol section,
clay by weight; rock
cent by volume (Soil

l or rock particles 2
0 inches) in

edrock is too near the
l use.
race). A ridge of earth,
t to protect downslope areas
its natural course.
efers to the frequency and
aturation or partial saturation
, opposed to altered
nonly the result of artificial
t may be caused by the
hannels or the blocking of
classes of natural soil
l:
Vater is removed from the
ively drained soils are
textured, rocky, or shallow.
free of the mottling related

drained.—Water is removed
any somewhat excessively
and rapidly pervious. Some
so steep that much of the
st as runoff. All are free of
vetness.
removed from the soil
t is available to plants
growing season, and
t growth of roots for
g most growing seasons.
ommonly medium textured.
mottling.
l.—Water is removed from
y during some periods.
soils are wet for only a
owing season, but
t long enough that most
ffected. They commonly
ayer within or directly below
y receive high rainfall, or

ed.—Water is removed slowly
vet for significant periods
on. Wetness markedly
nesophytic crops unless
vided. Somewhat poorly
have a slowly pervious
, additional water from
ous rainfall, or a combination

is removed so slowly that
odically during the growing
or long periods. Free water
the surface for long enough
on that most mesophytic
unless the soil is artificially
continuously saturated in
w depth. Poor drainage

results from a high water table, a slowly pervious layer within the profile, seepage, nearly continuous rainfall, or a combination of these.

Very poorly drained.—Water is removed from the soil so slowly that free water remains at or on the surface during most of the growing season. Unless the soil is artificially drained, most mesophytic crops cannot be grown. Very poorly drained soils are commonly level or depressed and are frequently ponded. Yet, where rainfall is high and nearly continuous, they can have moderate or high slope gradients.

Drainage, surface. Runoff, or surface flow of water, from an area.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of the activities of man or other animals or of a catastrophe in nature, such as fire, that exposes the surface.

Erosion classes. Classes that estimate past erosion based on the following:

Class 1.—Soils that have lost some of the original A horizon but on the average less than 25 percent of the original A horizon or of the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most of the area the thickness of the surface layer is within the normal range of variability of the uneroded soil. (Soil map units having class 1 erosion typically are not designated in the map unit description.

Class 2.—Soils that have lost on the average of 25 to 75 percent of the original A horizon or the uppermost 8 inches (if the original A horizon was less than 8 inches thick). Throughout most cultivated areas of class 2 erosion, the surface layer consists of a mixture of the original A horizon and material from below. Some areas may have intricate patterns ranging from uneroded spots to spots where all of the original A horizon has been removed.

Class 3.—Soils that have lost on the average of 75 percent or more of the original A horizon or the uppermost 8 inches (if the original A horizon was less than 8 inches thick). In most areas of class 3 erosion, material below the original A horizon is exposed at the surface in cultivated areas. The plow layer consists entirely or largely of material that was below the original A horizon.

Class 4.—Soils that have lost all of the A horizon or the uppermost 8 inches (if the original A horizon was less than 8 inches thick) plus some or all of the deeper horizons throughout most of the area. The original soil can be indentified only in spots. Some areas may be smooth, but most have an intricate pattern of gullies.

Erosion hazard. Terms describing the potential for future erosion, inherent in the soil itself, if inadequately protected. The following definitions are based on estimated annual soil loss in metric tons per hectare (values determined by the Universal Soil Loss Equation assuming bare soil conditions and using rainfall and climate factors for North Carolina):

None	0 t/ha
Slight	less than 2.5 t/ha
Moderate	2.5 to 10 t/ha
Severe	10 to 25 t/ha
Very severe	more than 25 t/ha

Excess fines (in tables). Excess silt and clay are in the soil. The soil is not a source of gravel or sand for construction purposes.

Fall line. The physiographic region where the Coastal Plain and the Piedmont landscapes meet.

Fallow. Cropland left idle in order to restore productivity through accumulation of moisture. Summer fallow is common in regions of limited rainfall where cereal grains are grown. The soil is tilled for at least one growing season for weed control and decomposition of plant residue.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, and clay.

First bottom. The normal flood plain of a stream, subject to frequent or occasional flooding.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors and mottles.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, seeded to grass as

ted rock (unweathered bedrock)
e rock commonly underlies a C
directly below an A or a B

posed, more or less stable part
r in mineral soils.
. Refers to soils grouped
noff-producing characteristics.
tion is the inherent capacity of
on to permit infiltration. The
of plant cover are not considered
tors in predicting runoff. Soils
groups. In group A are soils
tion rate when thoroughly wet
noff potential. They are mainly
and sandy or gravelly. In group
me, are soils having a very slow
hus a high runoff potential. They
ay layer at or near the surface,
igh water table, or are shallow
us bedrock or other material. A
vo hydrologic groups if part of
ially drained and part is

med by solidification of molten
alline in nature.
ard entry of water into the
of soil or other material. This
lation, which is movement of
yers or material.
e at which water penetrates the
t any given instant, usually
per hour. The rate can be
tion capacity of the soil or the
is applied at the surface.
water to soils to assist in

particular location on a generally
t is usually broken down to
slope, toe slope, terrace, and

. Rock fragments that are 3
ers) or more across. Large
ect the specified use of the soil.
of soluble material from soil or
rcolating water.
e content at which the soil
c to a liquid state.
is 7 to 27 percent clay particles,
particles, and less than 52
es.
tural class). A general textural
oarse sandy loam, sandy loam,
y fine sandy loam, loam, silt
sandy clay loam, and silty clay
y, p. 470).

Low strength. The soil is not strong enough to support loads.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Minimum tillage. Only the tillage essential to crop production and prevention of soil damage.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Mottling generally indicates poor aeration and impeded drainage. Descriptive terms are as follows: abundance—*few, common,* and *many*; size—*fine, medium,* and *coarse*; and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium*, from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse*, more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of the three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color of 10YR hue, value of 6, and chroma of 4.

No-till planting. A method of planting crops with no seed bed preparation. A specialized planter opens a slit in the soil surface and places the seed at the desired depth. Weeds are controlled with herbicides.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The downward movement of water through the soil.

Percs slowly (in tables). The slow movement of water through the soil adversely affects the specified use.

Permeability. The quality of the soil that enables water to move downward through the profile. Permeability is measured as the number of inches per hour that water moves downward through the saturated soil. Terms describing permeability are:

Very slow	less than 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management. For example, slope, stoniness, and thickness.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plinthite. The sesquioxide-rich, humus-poor, highly weathered mixture of clay with quartz and other diluents. It commonly appears as red mottles, usually in platy, polygonal, or reticulate patterns. Plinthite changes irreversibly to an ironstone hardpan or to irregular aggregates on repeated wetting and drying, especially if it is exposed also to heat from the sun. In a moist soil, plinthite can be cut with a spade. It is a form of laterite.

Plowpan. A compacted layer formed in the soil directly below the plowed layer.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Poor filter (in tables). Because of rapid permeability, the soil may not adequately filter effluent from a waste disposal system.

Poor outlets (in tables). In these areas, surface or subsurface drainage outlets are difficult or expensive to install.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Reaction, soil. A measure of the acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction lar in

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cts. Soils that cannot be classified in a series
nized in the classification system. Such soils
amed for a series they strongly resemble and
esignated as taxadjuncts to that series
use they differ in ways too small to be of
equence in interpreting their use and behavior.
An embankment, or ridge, constructed on the
ur or at a slight angle to the contour across
g soils. The terrace intercepts surface runoff,
at water soaks into the soil or flows slowly to a
red outlet.
geologic). An old alluvial plain, ordinarily flat or
ating, bordering a river, a lake, or the sea.
soil. The relative proportions of sand, silt, and
articles in a mass of soil. The basic textural
es, in order of increasing proportion of fine
les, are *sand, loamy sand, sandy loam, loam,*
am, silt, sandy clay loam, clay loam, silty clay
sandy clay, silty clay, and *clay*. The sand,
sand, and sandy loam classes may be further
d by specifying "coarse," "fine," or "very

—Soil material that contains 85 percent or
sand; the percentage of silt plus 1-1/2 times
ercentage of clay does not exceed 15.
y sand.—Soil material that contains at the
limit 85 to 90 percent sand, and the
ntage of silt plus 1-1/2 times the percentage
y is not less than 15; at the lower limit it
ns not less than 70 to 85 percent sand, and
ercentage of silt plus twice the percentage of
oes not exceed 30.
loam.—Soil material that contains either 20
nt clay or less and the percentage of silt plus
the percentage of clay exceeds 30, and 52
nt or more sand; or less than 7 percent clay,
han 50 percent silt, and between 43 and 52
nt sand.
—Soil material that contains 7 to 27 percent
28 to 50 percent silt, and less than 52 percent

am.—Soil material that contains 50 percent or
silt and 12 to 27 percent clay (or) 50 to 80
nt silt and less than 12 percent clay.
Soil material that contains 80 percent or more
d less than 12 percent clay.
clay loam.—Soil material that contains 20 to
rcent clay, less than 28 percent silt, and 45
nt or more sand.
oam.—Soil material that contains 27 to 40
nt clay and 20 to 45 percent sand.
lay loam.—Soil material that contains 27 to 40
nt clay and less than 20 percent sand.
clay.—Soil material that contains 35 percent
re clay and 45 percent or more sand.
lay.—Soil material that contains 40 percent or
clay and 40 percent or more silt.

Clay.—Soil material that contains 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Toe slope. The outermost inclined surface at the base of a hill; part of a foot slope.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Underlying material. Technically the C horizon; the part of the soil below the biologically altered A and B horizons.

Unstable fill (in tables). There is a risk of caving or sloughing on banks of fill material.

Upland (geology). Land at a higher elevation, in general, than the alluvial plain or stream terrace; land above the lowlands along streams.

Uplift. Heaving movement of the earth's crust resulting in vertical displacement or tilting of the strata over large areas of the earth's surface.

Weathering. All physical and chemical changes produced by atmospheric agents in rocks or other deposits at or near the earth's surface. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of course grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. This contrasts with poorly graded soil.

Wetness. A general term applied to soils that hold water at or near the surface long enough to be a common management problem.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Tables

Carolina]

recipitation

ars in 10 l have--			
s --	More than--	Average number of days with 0.10 inch or more	Average snowfall
	In		In
)5	4.80	8	2.5
)5	5.19	7	1.3
77	4.98	8	1.0
16	4.35	6	0.0
)0	4.95	7	0.0
27	5.38	6	0.0
19	7.18	8	0.0
27	6.94	8	0.0
54	5.40	5	0.0
32	4.31	5	0.0
44	4.62	5	0.0
35	4.71	6	1.1
--	---	---	---
--	---	---	---
)5	49.55	79	5.9

calculated by adding the temperature below which

	Acres	Percent
[illegible]	4,015	1.2
[illegible]	111	*
[illegible]	2,118	0.6
[illegible]	9,117	2.6
[illegible]	379	0.1
[illegible]	14,281	4.1
[illegible]	818	0.2
[illegible]	5,703	1.6
[illegible]	6,265	1.8
[illegible]	24,058	6.9
[illegible]	16,727	4.8
[illegible]	6,040	1.7
[illegible]	3,229	0.9
[illegible]	1,510	0.4
[illegible]	342	0.1
[illegible]	867	0.3
[illegible]	12,599	3.6
[illegible]	3,239	0.9
[illegible]	2,275	0.7
[illegible]	1,204	0.4
[illegible]	3,915	1.1
[illegible]	7,247	2.1
[illegible]	7,629	2.2
[illegible]	4,569	1.3
[illegible]	19,800	5.7
[illegible]	40,262	11.6
[illegible]	3,923	1.1
[illegible]	32,905	9.5
[illegible]	4,793	1.4
[illegible]	47,784	13.8
[illegible]	1,908	0.6
[illegible]	5,028	1.5
[illegible]	2,470	0.7
[illegible]	1,367	0.4
[illegible]	14,637	4.2
[illegible]	4,384	1.3
[illegible]	22,046	6.4
[illegible]	3,524	1.0
[illegible]	2,256	0.7
[illegible]	1,817	0.5
[illegible]	347,161	100.0

ROPS AND PASTURE

bsence of a yield indicates that the
ne soil]

Cucumber	Sunflowers	Tall fescue	Improved bermudagrass
Tons	Lbs	AUM*	AUM*
325	1,500	10.0	---
---	---	---	---
---	800	---	9.0
---	---	8.0	---
---	800	---	8.0
250	1,300	---	10.0
---	---	---	10.0
400	1,800	---	10.0
300	1,200	---	10.0
---	1,100	7.0	---
---	900	6.5	---
---	---	---	---
---	---	7.0	---
---	---	6.5	---
---	---	---	---
---	---	---	---
400	1,500	10.0	---
300	1,200	8.0	6.0
---	---	---	---

TABLE 5.--LAND CAPABILITY CLASSES AND YIELDS PER ACRE OF CROPS AND PASTURE--Continued

Map symbol and soil name	Land capability	Corn	Soybeans	Tobacco	Peanuts	Cotton lint	Wheat	Sweet potatoes	Cucumber	Sunflowers	Tall fescue	Improved bermudagrass
		Bu	Bu	Lbs	Lbs	Lbs	Bu	Bu	Tons	Lbs	AUM*	AUM*
WoA------------- Worsham	IVw	---	---	---	---	---	---	---	---	---	---	---

* Animal-unit-month: The amount of forage or feed required to feed one animal unit (one cow, one horse, one mule, five sheep, or five goats) for 30 days.

TABLE 6.--CAPABILITY CLASSES AND SUBCLASSES

[Miscellaneous areas are excluded. Absence of an entry indicates no acreage]

Class	Total acreage	Major management concerns [Subclass]		
		Erosion [e]	Wetness [w]	Soil problem [s]
		Acres	Acres	Acres
I	29,027	---	---	---
II	167,943	134,112	17,432	16,399
III	85,839	37,676	47,784	379
IV	9,559	2,275	7,284	---
V	9,117	---	9,117	---
VI	32,343	6,382	25,961	---
VII	---	---	---	---
VIII	---	---	---	---

arks
roduction as fescue- oduction is higher and lower in fall.
ntly lower total ue-Ladino clover, but good. Production can pdressed with 200 per acre in split
eded in bermudagrass.
y. High rates of ith 2 to 3 pounds cre added.
en 6 to 8 inches nches. If used for hes.
grazing crop for Will reseed the ed to make seed.
roduction as fescue. o fill in with g system. Production 80% if topdressed nitrogen per acre in
prigged.
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acid problems in plications of trate problems.

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TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY

[Only the soils suitable for production of commercial trees are listed. Absence of an entry indicates that information was not available]

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class1/	Trees to plant
AaA: Altavista	9W	Slight	Moderate	Slight	Loblolly pine	91	9	Loblolly pine.
					Longleaf pine	84	8	
					Shortleaf pine	---	---	
					Sweetgum	---	---	
					White oak	---	---	
					Red maple	---	---	
					Yellow-poplar	---	---	
					Southern red oak	---	---	
					Northern red oak	---	---	
					Water oak	---	---	
AuB: Autryville	7S	Slight	Moderate	Moderate	Loblolly pine	77	7	Loblolly pine, longleaf pine.
					Longleaf pine	---	---	
					Southern red oak	---	---	
					Shumard oak	---	---	
					Hickory	---	---	
					Sweetgum	---	---	
					Red maple	---	---	
					White oak	---	---	
					Post oak	---	---	
Bb: Bibb	7W	Slight	Severe	Severe	Sweetgum	90	7	Hardwoods. 2/
					Water oak	---	---	
					Blackgum	---	---	
BnB: Blanton	8S	Slight	Moderate	Moderate	Loblolly pine	80	8	Loblolly pine, longleaf pine.
					Longleaf pine	70	6	
					Bluejack oak	---	---	
					Turkey oak	---	---	
					Southern red oak	---	---	
					Live oak	---	---	
BoB: Bonneau	9S	Slight	Moderate	Moderate	Loblolly pine	86	9	Loblolly pine, longleaf pine.
					Longleaf pine	75	6	
					White oak	---	---	
					Hickory	---	---	
Co: Congaree	9A	Slight	Slight	Slight	Loblolly pine	90	9	Loblolly pine.
					Sweetgum	---	---	
					Yellow-poplar	98	7	
					Cherrybark oak	---	---	
					Eastern cottonwood	---	---	
					American sycamore	---	---	
					Black walnut	---	---	
					Scarlet oak	---	---	
					Willow oak	---	---	
DoA: Dothan	9A	Slight	Slight	Slight	Loblolly pine	88	9	Loblolly pine.
					Longleaf pine	---	---	
FaB: Faceville	8A	Slight	Slight	Slight	Loblolly pine	82	8	Loblolly pine.
					Longleaf pine	---	---	

See footnotes at end of table.

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TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

Map symbol and soil name	Ordination symbol	Management concerns: Erosion hazard	Management concerns: Equipment limitation	Management concerns: Seedling mortality	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Productivity class1/	Trees to plant
NoA, NoB----------- Norfolk	8A	Slight	Slight	Slight	Loblolly pine-------- Longleaf pine--------	82 68	8 5	Loblolly pine.
NpB:								
Norfolk-----------	8A	Slight	Slight	Slight	Loblolly pine-------- Longleaf pine--------	82 68	8 5	Loblolly pine.
Wedowee-----------	8A	Slight	Slight	Slight	Loblolly pine-------- Shortleaf pine------- Southern red oak----- White oak------------	80 69 70 65	8 8 4 3	Loblolly pine.
NrB:								
Norfolk-----------	8A	Slight	Slight	Slight	Loblolly pine-------- Longleaf pine--------	82 68	8 5	Loblolly pine.
Georgeville-------	8A	Slight	Slight	Slight	Loblolly pine-------- Longleaf pine-------- Shortleaf pine------- White oak------------ Scarlet oak---------- Southern red oak-----	81 --- 63 --- --- ---	8 --- 7 --- --- ---	Loblolly pine.
Faceville---------	8A	Slight	Slight	Slight	Loblolly pine-------- Longleaf pine--------	82 ---	8 ---	Loblolly pine.
Ra----------------- Rains	9W	Slight	Severe	Severe	Loblolly pine-------- Sweetgum-------------	94 ---	9 ---	Loblolly pine. 3/
To----------------- Tomotley	9W	Slight	Severe	Severe	Loblolly pine-------- Sweetgum------------- Water tupelo---------	94 --- ---	9 --- ---	Loblolly pine. 3/
WeB, WeC----------- Wedowee	8A	Slight	Slight	Slight	Loblolly pine-------- Shortleaf pine------- Southern red oak----- White oak------------	80 69 70 65	8 8 4 3	Loblolly pine.
Wh----------------- Wehadkee	8W	Slight	Severe	Severe	Sweetgum------------- Yellow-poplar-------- Willow oak----------- Green ash------------ Water oak------------ White ash------------	93 98 --- 96 --- 88	8 7 --- 4 --- 4	Hardwoods. 2/
WkA---------------- Wickham	9A	Slight	Slight	Slight	Loblolly pine-------- Yellow-poplar-------- Southern red oak-----	90 100 ---	9 8 ---	Loblolly pine.
WoA---------------- Worsham	9W	Slight	Severe	Severe	Loblolly pine-------- Northern red oak----- Virginia pine-------- Pin oak-------------- Yellow-poplar--------	88 80 80 85 91	9 4 8 4 6	Loblolly pine. 3/

TABLE 8.--WOODLAND MANAGEMENT AND PRODUCTIVITY--Continued

1/ Productivity class is the yield in cubic meters per hectare per year calculated at the age of culmination of mean annual increment for fully stocked natural stands. Cubic meters per hectare can be converted to cubic feet per acre by multiplying by 14.3. It can be converted to board feet by multiplying by a factor of about 71.

2/ To establish hardwoods on a forested site, rely on natural reproduction (seeds and sprouts) of acceptable species. Special site preparation techniques may be required. Planting of hardwoods on a specific site should be done upon recommendations of a forester.

3/ Potential productivity is attainable in areas adequately drained or bedded, or both.

TABLE 9.--RECREATIONAL DEVELOPMENT

[Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not rated]

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
AaA------------------- Altavista	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
AbA:					
Altavista------------	Severe: flooding.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.	Moderate: wetness.
Urban land.					
AuB------------------- Autryville	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
Bb-------------------- Bibb	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
BnB------------------- Blanton	Slight----------	Slight----------	Moderate: slope.	Slight----------	Moderate: droughty.
BoB------------------- Bonneau	Moderate: too sandy.	Moderate: too sandy.	Moderate: slope, too sandy.	Moderate: too sandy.	Moderate: droughty.
Co-------------------- Congaree	Severe: flooding.	Moderate: flooding.	Severe: flooding.	Moderate: flooding.	Severe: flooding.
DoA------------------- Dothan	Slight----------	Slight----------	Slight----------	Slight----------	Moderate: droughty.
FaB------------------- Faceville	Slight----------	Slight----------	Moderate: slope.	Slight----------	Slight.
GeB------------------- Georgeville	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
GeC------------------- Georgeville	Moderate: slope.	Moderate: slope.	Severe: slope.	Slight----------	Moderate: slope.
GeE------------------- Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Moderate: slope.	Severe: slope.
GgB, GgC-------------- Georgeville	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
GgE------------------- Georgeville	Severe: slope.	Severe: slope.	Severe: slope, small stones.	Moderate: slope.	Severe: slope.
GhB:					
Georgeville----------	Slight----------	Slight----------	Moderate: slope, small stones.	Slight----------	Slight.
Urban land.					

d

Paths and trails	Golf fairways
Slight----------	Slight.
Slight----------	Slight.
Slight----------	Moderate: slope.
Moderate: wetness.	Moderate: wetness.
Severe: wetness.	Severe: wetness, flooding.
Slight----------	Slight.
Slight----------	Slight.
Severe: erodes easily.	Moderate: slope.
Slight----------	Slight.
Slight----------	Slight.
Slight----------	Slight.
Slight----------	Slight.
Slight----------	Slight.
Slight----------	Slight.
Slight----------	Slight.
Slight----------	Slight.
Severe: wetness.	Severe: wetness.

TABLE 9.--RECREATIONAL DEVELOPMENT--Continued

Map symbol and soil name	Camp areas	Picnic areas	Playgrounds	Paths and trails	Golf fairways
Rb:					
Rains	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Urban land.					
To Tomotley	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.
Ud. Udorthents					
Ur. Urban land					
WeB Wedowee	Slight	Slight	Moderate: slope.	Slight	Slight.
WeC Wedowee	Slight	Slight	Severe: slope.	Slight	Slight.
Wh Wehadkee	Severe: flooding, wetness.	Severe: wetness.	Severe: wetness, flooding.	Severe: wetness.	Severe: wetness, flooding.
WkA Wickham	Severe: flooding.	Slight	Slight	Slight	Slight.
WoA Worsham	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.

" Absence of an entry indicates that the

land plants	Shallow water areas	Potential as habitat for-- Openland wildlife	Woodland wildlife	Wetland wildlife
r	Poor	Good	Good	Poor.
r	Poor	Good	Good	Poor.
y or.	Very poor.	Good	Good	Very poor.
d	Good	Fair	Fair	Good.
y or.	Very poor.	Fair	Fair	Very poor.
r	Poor	Good	Good	Poor.
r	Fair	Good	Good	Fair.
y or.	Very poor.	Good	Good	Very poor.
y or.	Very poor.	Good	Good	Very poor.
y or.	Very poor.	Good	Good	Very poor.
y or.	Very poor.	Poor	Fair	Very poor.
y or.	Very poor.	Good	Good	Very poor.
y or.	Very poor.	Poor	Fair	Very poor.
y or.	Very poor.	Good	Good	Very poor.
r	Poor	Good	Good	Poor.
r	Very poor.	Good	Good	Very poor.
r	Very poor.	Good	Good	Very poor.

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TABLE 10.--WILDLIFE HABITAT--Continued

Map symbol and soil name	Potential for habitat elements							Potential as habitat for--		
	Grain and seed crops	Grasses and legumes	Wild herbaceous plants	Hardwood trees	Coniferous plants	Wetland plants	Shallow water areas	Openland wildlife	Woodland wildlife	Wetland wildlife
Wh----------------- Wehadkee	Very poor.	Poor	Poor	Fair	Fair	Good	Fair	Poor	Fair	Fair.
WkA---------------- Wickham	Good	Good	Good	Good	Good	Poor	Very poor.	Good	Good	Very poor.
WoA---------------- Worsham	Poor	Fair	Fair	Fair	Fair	Good	Good	Fair	Fair	Good.

3UILDING SITE DEVELOPMENT

s are defined in the Glossary. See text for definitions of
of an entry indicates that the soil was not rated. The
ant soil condition; it does not eliminate the need for onsite

Dwellings with basements	Small commercial buildings	Local roads and streets	Lawns and landscaping
Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Moderate: wetness.
Severe: flooding, wetness.	Severe: flooding.	Moderate: wetness, flooding.	Moderate: wetness.
Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
Severe: flooding, wetness.	Severe: flooding, wetness.	Severe: wetness, flooding.	Severe: wetness, flooding.
Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
Severe: flooding.	Severe: flooding.	Severe: flooding.	Severe: flooding.
Moderate: wetness.	Slight---------	Slight---------	Moderate: droughty.
Slight---------	Moderate: slope.	Moderate: low strength.	Slight.
Slight---------	Moderate: slope.	Severe: low strength.	Slight.
Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: slope.
Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.
Slight---------	Moderate: slope.	Severe: low strength.	Moderate: small stones.
Moderate: slope.	Severe: slope.	Severe: low strength.	Moderate: small stones, slope.
Severe: slope.	Severe: slope.	Severe: low strength, slope.	Severe: slope.

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ping

. See text for definitions of
soil was not rated. The
ot eliminate the need for

Area sanitary landfill	Daily cover for landfill
re: oding, page, ness.	Fair: wetness.
re: oding, page, ness.	Fair: wetness.
re: page.	Fair: too sandy.
re: oding, ness.	Poor: wetness.
re: page.	Fair: too sandy.
rate: ness.	Good.
re: oding, ness.	Fair: wetness.
at-----------	Good.
at-----------	Fair: too clayey.
at-----------	Fair: too clayey, hard to pack.
rate: pe.	Fair: too clayey, hard to pack, slope.
re: pe.	Poor: slope.
at-----------	Fair: too clayey, hard to pack.

TABLE 12.--SANITARY FACILITIES--Continued

Map symbol and soil name	Septic tank absorption fields	Sewage lagoon areas	Trench sanitary landfill	Area sanitary landfill	Daily cover for landfill
GgC: Georgeville	Moderate: percs slowly, slope.	Severe: slope.	Moderate: slope, too clayey.	Moderate: slope.	Fair: too clayey, hard to pack, slope.
GgE: Georgeville	Severe: slope.	Severe: slope.	Severe: slope.	Severe: slope.	Poor: slope.
GhB:					
Georgeville	Moderate: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey, hard to pack.
Urban land.					
GoA: Goldsboro	Severe: wetness.	Severe: wetness.	Severe: wetness.	Severe: wetness.	Fair: wetness.
GrB: Gritney	Severe: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey.
GrC: Gritney	Severe: percs slowly.	Severe: slope.	Moderate: too clayey.	Moderate: slope.	Fair: too clayey.
HeB: Helena	Severe: wetness, percs slowly.	Severe: wetness.	Severe: depth to rock, wetness, too clayey.	Moderate: wetness, depth to rock.	Poor: too clayey, hard to pack.
Me: Meggett	Severe: flooding, wetness, percs slowly.	Severe: flooding, wetness.	Severe: flooding, wetness, too clayey.	Severe: flooding, wetness.	Poor: too clayey, hard to pack, wetness.
NaC: Nankin	Severe: percs slowly.	Moderate: seepage, slope.	Moderate: too clayey.	Slight	Fair: too clayey.
NnB: Nason	Moderate: depth to rock, percs slowly.	Moderate: slope, seepage, depth to rock.	Severe: too clayey, depth to rock.	Moderate: depth to rock.	Poor: too clayey, hard to pack.
NnC: Nason	Moderate: slope, depth to rock, percs slowly.	Severe: slope.	Severe: too clayey, depth to rock.	Moderate: slope, depth to rock.	Poor: too clayey, hard to pack.
NoA, NoB: Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Good.
NpB:					
Norfolk	Moderate: wetness.	Moderate: seepage.	Slight	Slight	Good.
Wedowee	Moderate: percs slowly.	Moderate: slope.	Moderate: too clayey.	Slight	Fair: too clayey, thin layer.

TABLE 13.--CONSTRUCTION MATERIALS

terms that describe restrictive soil features are defined in the Glossary. See text for definitions of good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The nformation in this table indicates the dominant soil condition; it does not eliminate the need for nsite investigation]

p symbol and soil name	Roadfill	Sand	Gravel	Topsoil
---------------- ista	Fair: wetness, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Good.
ista------------ land.	Fair: wetness, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Good.
---------------- ville	Good----------------	Improbable: thin layer.	Improbable: too sandy.	Fair: too sandy.
----------------	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
---------------- on	Good----------------	Probable------------	Improbable: too sandy.	Fair: too sandy.
---------------- au	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy.
---------------- ree	Fair: low strength, wetness.	Improbable: excess fines.	Improbable: excess fines.	Good.
---------------- n	Good----------------	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, thin layer.
---------------- ille	Fair: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
eC-------------- eville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
---------------- eville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
gC-------------- eville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
---------------- eville	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer, slope.
eville---------- land.	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.

:ON MATERIALS--Continued

:and	Gravel	Topsoil
,e: 'ines.	Improbable: excess fines.	Good.
.e: 'ines.	Improbable: excess fines.	Poor: thin layer.
e: 'ines.	Improbable: excess fines.	Poor: thin layer.
e: 'ines.	Improbable: excess fines.	Poor: thin layer, wetness.
e: ines.	Improbable: excess fines.	Poor: thin layer.
e: ines.	Improbable: excess fines.	Poor: thin layer, area reclaim.
e: ines.	Improbable: excess fines.	Fair: too sandy.
e: ines.	Improbable: excess fines.	Fair: too sandy.
e: ines.	Improbable: excess fines.	Poor: thin layer.
e: ines.	Improbable: excess fines.	Fair: too sandy.
e: ines.	Improbable: excess fines.	Poor: thin layer.
e: ines.	Improbable: excess fines.	Poor: thin layer.
e: ines.	Improbable: excess fines.	Fair: too sandy.
e: ines.	Improbable: excess fines.	Poor: wetness.
e: ines.	Improbable: excess fines.	Poor: wetness.
e: ines.	Improbable: excess fines.	Poor: wetness.

TABLE 13.--CONSTRUCTION MATERIALS--Continued

Map symbol and soil name	Roadfill	Sand	Gravel	Topsoil
Ud. Udorthents				
Ur. Urban land				
WeB, WeC----- Wedowee	Poor: low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: thin layer.
Wh----- Wehadkee	Poor: wetness.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness.
WkA----- Wickham	Fair: thin layer.	Improbable: excess fines.	Improbable: excess fines.	Good.
WoA----- Worsham	Poor: wetness, low strength.	Improbable: excess fines.	Improbable: excess fines.	Poor: wetness, thin layer.

nitions of
ated. The
d for onsite

Grassed waterways
Favorable.
Favorable.
Droughty.
Wetness.
Droughty.
Droughty.
Erodes easily.
Droughty.
Favorable.
Favorable.
Slope.
Favorable.
Slope.
Favorable.
Favorable.

Continued

Features affecting--		
Irrigation	Terraces and diversions	Grassed waterways
Percs slowly, slope, soil blowing.	Percs slowly, erodes easily, soil blowing.	Erodes easily, percs slowly.
Percs slowly, slope, soil blowing.	Slope, erodes easily, soil blowing.	Slope, erodes easily, percs slowly.
Slope, wetness, percs slowly.	Wetness, percs slowly.	Percs slowly.
Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.
Slope----------	Favorable------	Favorable.
Erodes easily, slope.	Erodes easily	Erodes easily.
Erodes easily, slope.	Slope, erodes easily.	Slope, erodes easily.
Fast intake----	Favorable------	Favorable.
Slope----------	Favorable------	Favorable.
Slope----------	Favorable------	Favorable.
Slope----------	Favorable------	Favorable.
Slope----------	Favorable------	Favorable.
Slope----------	Favorable------	Favorable.
Fast intake, slope.	Favorable------	Favorable.
Slope----------	Favorable------	Favorable.
Wetness--------	Wetness, soil blowing.	Wetness.

TABLE 14.--WATER MANAGEMENT--Continued

Map symbol and soil name	Limitations for--		Features affecting--			
	Pond reservoir areas	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
Rb:						
Rains	Moderate: seepage.	Moderate: slow refill.	Favorable	Wetness	Wetness, soil blowing.	Wetness.
Urban land.						
To: Tomotley	Moderate: seepage.	Severe: slow refill.	Favorable	Wetness, soil blowing.	Wetness, soil blowing.	Wetness.
Ud. Udorthents						
Ur. Urban land						
WeB: Wedowee	Moderate: slope.	Severe: no water.	Deep to water	Slope	Favorable	Favorable.
WeC: Wedowee	Severe: slope.	Severe: no water.	Deep to water	Slope	Slope	Slope.
Wh: Wehadkee	Moderate: seepage.	Slight	Flooding	Wetness, flooding.	Wetness	Wetness.
WkA: Wickham	Moderate: seepage.	Severe: no water.	Deep to water	Favorable	Favorable	Favorable.
WoA: Worsham	Slight	Severe: slow refill.	Percs slowly	Wetness, percs slowly.	Wetness, percs slowly.	Wetness, percs slowly.

TABLE 15.--ENGINEERING INDEX PROPERTIES

[The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
AaA-------------- Altavista	0-14	Sandy loam-------	SM	A-2	0	95-100	90-100	50-99	15-35	---	NP
	14-44	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SM-SC	A-4, A-6, A-7	0	95-100	95-100	60-99	45-75	20-45	5-28
	44-60	Variable---------	---	---	---	---	---	---	---	---	---
AbA:											
Altavista-------	0-14	Sandy loam-------	SM	A-2	0	95-100	90-100	50-99	15-35	---	NP
	14-44	Clay loam, sandy clay loam, loam.	CL, CL-ML, SC, SM-SC	A-4, A-6, A-7	0	95-100	95-100	60-99	45-75	20-45	5-28
	44-60	Variable---------	---	---	---	---	---	---	---	---	---
Urban land.											
AuB-------------- Autryville	0-21	Loamy sand-------	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
	21-51	Sandy loam, sandy clay loam, fine sandy loam.	SM	A-2	0	100	100	50-100	15-30	<25	NP-3
	51-61	Sand, loamy sand, loamy fine sand.	SP-SM, SM	A-2, A-3	0	100	100	50-100	5-20	---	NP
	61-81	Sandy loam, sandy clay loam, fine sandy loam.	SM, SC, SM-SC	A-2, A-4	0	100	100	60-100	20-49	<30	NP-10
Bb--------------- Bibb	0-11	Loam-------------	ML, CL-ML	A-4	0-5	95-100	90-100	80-90	50-80	<25	NP-7
	11-60	Sandy loam, loam, silt loam.	SM, SM-SC, ML, CL-ML	A-2, A-4	0-10	60-100	50-100	40-100	30-90	<30	NP-7
BnB-------------- Blanton	0-49	Loamy sand-------	SM	A-2-4	0	100	95-100	85-100	13-25	---	NP
	49-85	Sandy clay loam, sandy loam, fine sandy loam.	SC, SM-SC, SM	A-4, A-2-4, A-2-6, A-6	0	100	95-100	69-96	25-50	16-45	3-22
BoB-------------- Bonneau	0-35	Loamy sand-------	SM	A-2	0	100	100	50-95	15-35	---	NP
	35-93	Sandy loam, sandy clay loam, fine sandy loam.	SC, SM-SC	A-2, A-6, A-4	0	100	100	60-100	30-50	21-40	4-21
Co--------------- Congaree	0-5	Fine sandy loam	SM, SM-SC	A-2, A-4	0	95-100	95-100	70-100	20-50	<30	NP-7
	5-92	Silty clay loam, fine sandy loam, loam.	SC, ML, CL, SM	A-4, A-6, A-7	0	95-100	95-100	70-100	40-90	25-50	3-22
DoA-------------- Dothan	0-16	Loamy sand-------	SM	A-2	0	95-100	92-100	60-80	13-30	---	NP
	16-29	Sandy clay loam, sandy loam, fine sandy loam.	SM-SC, SC, SM	A-2, A-4, A-6	0	95-100	92-100	68-90	23-49	<40	NP-16
	29-84	Sandy clay loam, sandy clay.	SM-SC, SC, SM, CL	A-2, A-4, A-6, A-7	0	95-100	92-100	70-95	30-53	25-45	4-23
FaB-------------- Faceville	0-10	Loamy sand-------	SM	A-2	0	90-100	85-100	72-97	13-25	---	NP
	10-19	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	19-70	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
GeB, GeC, GeE---- Georgeville	0-6	Loam-------------	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
GgB, GgC, GgE---- Georgeville	0-6	Gravelly loam	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
GhB: Georgeville-----	0-6	Loam-------------	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
Urban land.											
GoA-------------- Goldsboro	0-10	Fine sandy loam	SM, SM-SC, SC	A-2, A-4, A-6	0	95-100	95-100	50-100	15-45	<25	NP-14
	10-93	Sandy clay loam, sandy loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	60-100	25-55	16-37	4-18
GrB, GrC--------- Gritney	0-7	Sandy loam-------	SM, SM-SC	A-2-4, A-4	0	100	95-100	75-99	18-42	<30	NP-6
	7-14	Sandy clay loam, sandy clay, clay loam.	SC, CL	A-6, A-7	0	100	95-100	80-100	36-60	35-48	15-25
	14-53	Sandy clay, clay, clay loam.	CH, CL, SC	A-7	0	100	95-100	80-100	45-70	44-62	22-40
	53-60	Sandy clay loam	CH, CL, SC	A-7	0	100	95-100	80-100	40-55	40-55	20-35
	60-80	Variable---------	---	---	---	---	---	---	---	---	---
HeB-------------- Helena	0-18	Coarse sandy loam	SM, SM-SC, SC	A-2, A-4	0-5	95-100	90-100	51-90	26-46	<30	NP-9
	18-31	Sandy clay loam, clay loam, sandy loam.	CL, SC	A-6, A-7	0-5	95-100	95-100	70-90	49-70	30-49	15-26
	31-48	Clay loam, sandy clay, clay.	CH	A-7	0-5	95-100	95-100	73-97	56-86	50-85	24-50
	48-68	Variable---------	---	---	---	---	---	---	---	---	---
Me--------------- Meggett	0-6	Loam-------------	ML, CL-ML	A-4	0	100	90-100	85-100	51-75	<35	NP-10
	6-12	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	12-44	Clay, sandy clay, clay loam.	CH, MH, CL	A-6, A-7	0	100	90-100	85-100	51-90	30-60	20-30
	44-60	Sandy clay, clay loam, sandy clay loam.	CL, SC, SM	A-4, A-6	0	90-100	65-100	50-100	40-60	<40	NP-25

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Frag- ments > 3 inches	Percentage passing sieve number--				Liquid limit	Plas- ticity index
			Unified	AASHTO		4	10	40	200		
	In				Pct					Pct	
NaC--------------- Nankin	0-4	Sandy loam-------	SM, SM-SC	A-2, A-4	0	85-100	85-100	70-90	25-45	<25	NP-4
	4-27	Sandy clay, clay, sandy clay loam.	SC, CL	A-4, A-6, A-7	0	98-100	95-100	75-95	40-70	25-45	7-20
	27-60	Sandy clay loam, sandy loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	98-100	95-100	70-85	25-55	<30	NP-12
NnB, NnC--------- Nason	0-8	Loam-------------	ML, CL-ML, SM	A-4	0-5	80-100	75-100	55-95	35-85	<38	NP-10
	8-36	Silty clay loam, silty clay, clay.	CL, CH	A-7	0-5	80-100	75-100	70-95	65-90	40-60	15-30
	36-58	Channery silt loam, silt loam.	CL-ML, SC, GM-GC	A-2, A-4, A-6	0-5	50-80	45-75	40-75	30-70	20-35	4-12
	58	Weathered bedrock	---	---	---	---	---	---	---	---	---
NoA, NoB--------- Norfolk	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---
NpB:											
Norfolk---------	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---
Wedowee---------	0-13	Sandy loam-------	SM, SM-SC	A-4, A-2-4	0	95-100	90-100	60-99	23-50	<30	NP-6
	13-39	Sandy clay, clay loam, clay.	SC, ML, CL, SM	A-6, A-7	0	95-100	95-100	65-97	45-75	30-58	10-25
	39-63	Variable---------	---	---	---	---	---	---	---	---	---
NrB:											
Norfolk---------	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---
Georgeville-----	0-6	Loam-------------	ML	A-4	0-2	90-100	85-100	65-100	51-98	<40	NP-10
	6-11	Silty clay loam, clay loam.	CL, ML	A-6, A-7, A-4	0-1	90-100	90-100	85-100	70-98	30-49	8-20
	11-38	Clay, silty clay, silty clay loam.	MH, ML	A-7	0-1	95-100	95-100	90-100	75-98	41-75	15-35
	38-78	Silty clay loam, loam, silt loam.	ML, CL, CL-ML	A-4, A-6	0-5	90-100	90-100	65-100	51-95	<30	NP-12
Faceville-------	0-10	Loamy sand-------	SM	A-2	0	90-100	85-100	72-97	13-25	---	NP
	10-19	Sandy clay loam, sandy clay.	SC, ML, CL, SM	A-4, A-6	0	98-100	90-100	85-98	46-66	<35	NP-13
	19-70	Sandy clay, clay, clay loam.	CL, SC, CH	A-6, A-7	0	98-100	95-100	75-99	45-72	25-52	11-25
NuB:											
Norfolk---------	0-19	Loamy sand-------	SM	A-2	0	95-100	92-100	50-95	13-30	<20	NP
	19-64	Sandy loam, sandy clay loam, clay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	95-100	91-100	70-96	30-63	20-38	4-15
	64-82	Variable---------	---	---	---	---	---	---	---	---	---

TABLE 15.--ENGINEERING INDEX PROPERTIES--Continued

JSDA texture	Classification: Unified	Classification: AASHTO	Fragments > 3 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
			Pct					Pct	
ne sandy loam	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
ndy clay loam, lay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
ndy clay loam, lay loam, sandy lay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
ne sandy loam	SM, ML	A-2, A-4	0	100	95-100	50-85	25-56	<35	NP-10
ndy clay loam, ay loam.	SC, SM-SC, CL, CL-ML	A-2, A-4, A-6	0	100	95-100	55-98	30-70	18-40	4-20
ndy clay loam, ay loam, sandy lay.	SC, SM-SC, CL, CL-ML	A-4, A-6, A-7	0	100	98-100	60-98	36-72	18-45	4-28
ne sandy loam	SM	A-2, A-4	0	98-100	95-100	75-98	25-50	<30	NP-7
ne sandy loam, ndy clay loam, ay loam.	SM-SC, SC, CL-ML, CL	A-2, A-4, A-6	0	98-100	95-100	75-98	30-70	20-40	6-18
iable---------	---	---	---	---	---	---	---	---	---
rse sandy loam	SM, SM-SC	A-4, A-2-4	0	95-100	90-100	60-99	23-50	<30	NP-6
ndy clay, clay am, clay.	SC, ML, CL, SM	A-6, A-7	0	95-100	95-100	65-97	45-75	30-58	10-25
iable---------	---	---	---	---	---	---	---	---	---
m-------------	SM, SC, SM-SC	A-2, A-4	0	100	95-100	60-90	30-50	<35	NP-10
m, sandy clay am, clay loam.	ML, CL, CL-ML	A-6, A-7, A-4	0	100	99-100	85-100	51-90	25-50	7-25
iable---------	---	---	---	---	---	---	---	---	---
e sandy loam	SM, SM-SC, ML, CL-ML	A-4	0	95-100	90-100	70-100	45-80	<25	NP-7
dy clay loam, ay loam, loam.	CL-ML, CL, SC, SM-SC	A-2, A-4, A-6, A-7-6	0	95-100	90-100	75-100	30-70	20-41	5-15
iable---------	---	---	---	---	---	---	---	---	---
m-------------	CL, CL-ML	A-4, A-6	0-5	90-100	85-100	70-100	50-90	20-35	4-12
dy clay loam, ndy clay, ay.	SC, CH, CL	A-2, A-7	0-5	90-100	85-100	70-100	30-95	42-66	22-40
dy loam, sandy ay loam, clay am.	SC, CL	A-2, A-4, A-6, A-7	0-10	90-95	80-95	50-90	30-70	20-50	8-30

ntinued

nk-swell tential	Erosion factors K	Erosion factors T	Organic matter
			Pct
	0.20	3	1-4
ate	0.32		
	0.32		
	0.28		

	0.15	3	.5-2
ate	0.28		
	0.28		

	0.28	5	2-8
	0.32		
	0.32		
ate	0.28		
	0.28	3	.5-1
	0.24		
	0.24		
	0.37	4	1-3
ate	0.28		
	0.28		

	0.20	5	.5-2
	0.24		

	0.20	5	.5-2
	0.24		

	0.24	3	<1
ate	0.28		

	0.20	5	.5-2
	0.24		

	0.32	4	.5-2
	0.32		
	0.28		
	0.32		
	0.17	5	.5-1
	0.37		
	0.37		
	0.20	5	.5-2
	0.24		

TABLE 16.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors K	Erosion factors T	Organic matter
	In	Pct	G/cm	In/hr	In/in	pH				Pct
Ra---------------- Rains	0-14	5-20	1.30-1.60	2.0-6.0	0.10-0.14	4.5-6.5	Low----------	0.20	5	1-6
	14-48	18-35	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.24		
	48-85	18-40	1.30-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28		
Rb:										
Rains-----------	0-14	5-20	1.30-1.60	2.0-6.0	0.10-0.14	4.5-6.5	Low----------	0.20	5	1-6
	14-48	18-35	1.30-1.50	0.6-2.0	0.11-0.15	4.5-5.5	Low----------	0.24		
	48-85	18-40	1.30-1.50	0.6-2.0	0.10-0.15	4.5-5.5	Low----------	0.28		
Urban land.										
To---------------- Tomotley	0-7	5-20	1.30-1.60	2.0-6.0	0.10-0.15	3.6-5.5	Low----------	0.20	5	1-6
	7-53	18-35	1.30-1.50	0.6-2.0	0.12-0.18	3.6-5.5	Low----------	0.20		
	53-80	---	---	---	---	---	-------------	---		
Ud. Udorthents										
Ur. Urban land										
WeB, WeC--------- Wedowee	0-13	6-20	1.25-1.60	2.0-6.0	0.10-0.18	4.5-5.5	Low----------	0.24	3	<1
	13-39	35-45	1.30-1.50	0.6-2.0	0.12-0.18	4.5-5.5	Moderate-----	0.28		
	39-63	---	---	---	---	---	-------------	---		
Wh---------------- Wehadkee	0-5	5-20	1.35-1.60	2.0-6.0	0.10-0.15	4.5-6.5	Low----------	0.24	5	2-5
	5-37	18-35	1.30-1.50	0.6-2.0	0.16-0.20	4.5-6.5	Low----------	0.32		
	37-62	---	---	---	---	---	-------------	---		
WkA--------------- Wickham	0-14	8-15	1.45-1.65	2.0-6.0	0.11-0.16	4.5-6.0	Low----------	0.24	5	.5-2
	14-41	18-25	1.30-1.40	0.6-2.0	0.12-0.17	4.5-6.0	Low----------	0.24		
	41-67	---	---	---	---	---	-------------	---		
WoA--------------- Worsham	0-7	10-25	1.25-1.55	0.6-2.0	0.14-0.20	4.5-5.5	Low----------	0.37	4	1-3
	7-50	30-55	1.35-1.65	<0.06	0.10-0.16	4.5-5.5	Moderate-----	0.28		
	50-67	10-40	1.20-1.50	0.2-0.6	0.08-0.19	4.5-5.5	Moderate-----	0.28		

TABLE 17.--SOIL AND WATER FEATURES

["Flooding" and "water table" and terms such as "rare," "brief," "apparent," and "perched" are explained in the text. The symbol > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated]

Map symbol and soil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
AaA: Altavista	C	Rare	Very brief	Mar-Jul	1.5-2.5	Apparent	Dec-Mar	>60	---	Moderate	Moderate.
AbA:											
Altavista	C	Rare	Very brief	Mar-Jul	1.5-2.5	Apparent	Dec-Mar	>60	---	Moderate	Moderate.
Urban land.											
AuB: Autryville	A	None	---	---	4.0-6.0	Apparent	Jan-Apr	>60	---	Low	High.
Bb: Bibb	C	Frequent	Brief	Dec-May	0.5-1.5	Apparent	Dec-Apr	>60	---	High	Moderate.
BnB: Blanton	A	None	---	---	5.0-6.0	Perched	Dec-Mar	>60	---	High	High.
BoB: Bonneau	A	None	---	---	3.5-5.0	Apparent	Dec-Mar	>60	---	Low	High.
Co: Congaree	B	Frequent	Brief	Nov-Apr	2.5-4.0	Apparent	Nov-Apr	>60	---	Moderate	Moderate.
DoA: Dothan	B	None	---	---	3.0-5.0	Perched	Jan-Apr	>60	---	Moderate	Moderate.
FaB: Faceville	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
GeB, GeC, GeE, GgB, GgC, GgE: Georgeville	B	None	---	---	>6.0	---	---	>60	---	High	High.
GhB:											
Georgeville	B	None	---	---	>6.0	---	---	>60	---	High	High.
Urban land.											
GoA: Goldsboro	B	None	---	---	2.0-3.0	Apparent	Dec-Apr	>60	---	Moderate	High.
GrB, GrC: Gritney	C	None	---	---	>6.0	---	---	>60	---	High	Moderate.
HeB: Helena	C	None	---	---	1.5-2.5	Perched	Jan-Apr	48-60	Soft	High	High.
Me: Meggett	D	Frequent	Long	Dec-Apr	0-1.0	Apparent	Nov-Apr	>60	---	High	Moderate.
NaC: Nankin	C	None	---	---	>6.0	---	---	>60	---	High	High.
NnB, NnC: Nason	C	None	---	---	>6.0	---	---	40-60	Soft	Moderate	High.

TABLE 17.--SOIL AND WATER FEATURES--Continued

symbol and oil name	Hydro-logic group	Flooding			High water table			Bedrock		Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months	Depth	Hard-ness	Uncoated steel	Concrete
					Ft			In			
NoB:											
olk	B	None	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
olk	B	None	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
wee	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
olk	B	None	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
geville	B	None	---	---	>6.0	---	---	>60	---	High	High.
ville	B	None	---	---	>6.0	---	---	>60	---	Low	Moderate.
olk	B	None	---	---	4.0-6.0	Apparent	Jan-Mar	>60	---	Moderate	High.
n land.											
	B/D	None	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High	High.
s											
s	B/D	None	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High	High.
n land.											
	B/D	Rare	---	---	0-1.0	Apparent	Dec-Mar	>60	---	High	High.
tley											
chents											
n land											
NeC:											
wee	B	None	---	---	>6.0	---	---	>60	---	Moderate	High.
lkee	D	Frequent	Brief	Nov-Jun	0-2.5	Apparent	Dec-May	>60	---	High	Moderate.
nam	B	Rare	---	---	>6.0	---	---	>60	---	Moderate	High.
ham	D	None	---	---	0-1.0	Apparent	Nov-Apr	>60	---	High	Moderate.

ture ity	
ptimum oisture	
Pct	
	14.7
	24.7
	21.3

Feet

OF THE SOILS

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